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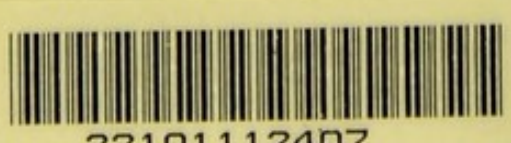
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DISEASES OF THE SKIN.

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DISEASES OF THE SKIN

THEIR

DESCRIPTION, PATHOLOGY, DIAGNOSIS AND TREATMENT

WITH

SPECIAL REFERENCE TO THE SKIN ERUPTIONS OF CHILDREN

AND

AN ANALYSIS OF TWELVE THOUSAND CASES OF SKIN DISEASE

BY

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SECOND EDITION, WITH 92 ILLUSTRATIONS

LONDON

H. K. LEWIS, 136 GOWER STREET, W.C.

MDCCCXCIII

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To the Memory

OF THE LATE

DR. TILBURY FOX,

TO WHOSE TEACHING AND EXAMPLE

THE AUTHOR

OWES MUCH OF HIS KNOWLEDGE AND SUCCESS,

This Work is Respectfully Dedicated.

PREFACE

TO THE SECOND EDITION.

THE First Edition has been out of print for some little time, partly due to the pressure of other engagements, and partly to the enormous activity of dermatology all over the world, rendering the task of making a compendious record of the work done very arduous. The delay, however, has enabled me to include in the latter part of the work, as it was going through the press, a notice of the most important contributions of the recent International Congress of Dermatology at Vienna. Without altering the scope of the work, almost every page has had some emendation or addition, and a large number of new articles have been included in this issue. The most important of these are :—Erythema Induratum, Hydroa Vacciniforme and Recurring Summer Eruptions, Pityriasis Rubra Pilaris, Morvan's Disease, Darier's Disease, Angioma Serpiginosum, Angiokeratoma, Phagedæna Tropica, Seborrhœic Dermatitis, Adenoma Sebaceum, Actinomycosis, and Epidemic Exfoliative Dermatitis ; the last, by an oversight, was omitted from its proper place next Pityriasis Rubra, and has been put in at the end. Minor additions are :—Erythema Ab Igne, Parakeratosis Variegata, some additional Drug Eruptions, Multiple Gangrene in Adults, Acanthosis Nigricans, Multiple

Benign Tumour-like New Growths, Multiple Dermoid Cysts, Follicular Disease of the Scalp, Grouped Comedones, Congenital Fibro-sebaceous Disease, Plica, Folliculitis Decalvans, and some additional Nail Defects. Fortunately alongside of these fruits of more careful analysis the synthetical side is progressing, and we are gaining a clearer insight into the relations of apparently dissimilar diseases, such as those of Impetigo Contagiosa and its variant Ecthyma, to Boils and Carbuncles, the group of diseases due to Tubercle Bacilli, the Seborrhœic Group, the relation of Pityriasis Rubra Pilaris to Lichen Ruber, which will before long be thoroughly established; while there is a fair prospect of many other such relationships being proved, as they are already more than suspected.

Among the new illustrations, of which there are sixteen, histological and other, are that of an Iodide Eruption, a special form of Molluscum Contagiosum, Xanthoma Tuberosum and Diabeticorum, Lupus Verrucosus, and Adenoma Sebaceum. There are also illustrations of the so-called Psorosperms and Actinomycosis. As in the previous edition, all except those of the Parasites are original.

The arrangement by which the work can be used as a student's book, as well as one of reference, has been carefully preserved; and a page of instructions how to make the best use of it for this purpose is added.

I have to thank Mr. George Pernet for his care and assistance in reading the proofs for the press; and Mr. Gerrard, the head of the Hospital Dispensary and Lecturer on Pharmacy, who was kind enough to look through the Formulary at the end, to prevent pharmaceutical errors from creeping in.

121, HARLEY STREET,
January 1893.

PREFACE

TO THE FIRST EDITION.

IN this work my aim has been to give a succinct account of our present knowledge of dermatology, and, at the same time, to make it a reflex of twelve years' experience in the Skin Department of University College Hospital and in the more general work of the East London Hospital for Children; and special attention has been paid to the peculiarities presented by diseases of the skin in early life. All the illustrations are drawn from my own preparations, except those of parasites and of the normal anatomy of the skin. These last have been given to enable the reader to refresh his memory with as little trouble as possible; but I have not deemed it necessary to encumber the work with a description of the histology of the normal skin, which is to be found in every work on anatomy; while a more elaborate account may be sought in Unna's article in the Skin volume of Ziemssen's *Cyclopædia*.

While, perhaps, the "ego" is more prominent than in most works of this class, I have endeavoured to do justice to the labours of others in the same field, always, I hope, with due acknowledgment to these authors,

though sometimes a fact may have become unconsciously assimilated, or the source of knowledge forgotten, and I can only express regret for any inadvertent omissions in this direction. Among the numerous authors to whom I am indebted, Hebra, Kaposi, Neumann, Unna, Bazin, Hardy, Vidal, Duhring, Erasmus Wilson, Tilbury Fox, and Hutchinson must be especially mentioned.

As so large a number of British students practise abroad and in our colonies, and so many patients have contracted disease away from home, I have described endemic and tropical diseases as fully as I considered their relative importance warranted.

In this, and in other ways, I have endeavoured to make this work a complete one, so far as its limited scope permitted; but to do this, and yet keep it within reasonable bounds, I have been constrained to adopt a somewhat bald style of exposition, which I am aware detracts from its readability. I trust, however, that it will fulfil the double object of serving as a work of ready reference to the general practitioner, while if read as I would suggest, the student may obtain from it what he requires for his examinations without expending more labour than he would in mastering a much smaller manual. At the commencement, after reading the general section, he should study the typical aspect of each disease, the leading points in the etiology, the pathology without the anatomy, the first part of the diagnosis, and the greater part of the treatment; and when his experience and opportunities become more extensive, he will be ready to read the previously omitted sections. To further assist him, I have endeavoured to accentuate the most important points by

differences in the type and other means. In order to aid those who desire a more detailed account of the rarer forms of disease, I have given a selected literature, choosing those monographs which either give the best account of the disease, or which open up a wider bibliography. The nomenclature is in accordance with that used by the majority of dermatologists; and though most of the other terms commonly met with in literature are explained, they are so, only to prevent the student being puzzled when he reads of them elsewhere, and their use is to be carefully avoided. The real varieties of the disease are mentioned at the commencement of each article.

My warmest thanks are due to my friend and colleague Dr. Coutts, for his very valuable and painstaking assistance in seeing the book through the press.

In conclusion, I can only express a hope that this work will be found to possess truthfulness to nature and sufficient individuality to enable it to find and retain a place in the now rapidly growing literature of dermatology.

121, HARLEY STREET,
May 1888.

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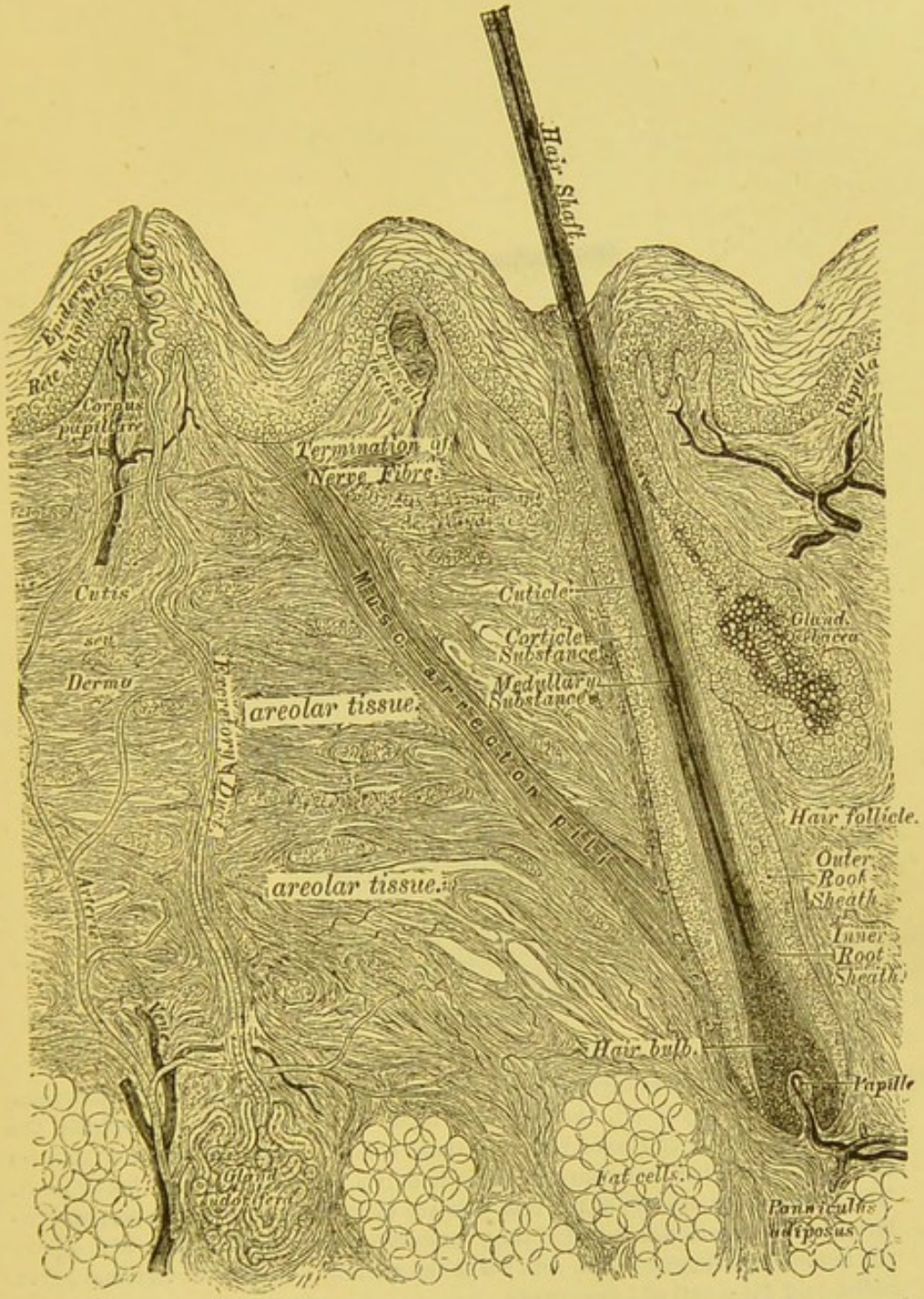


Fig. 1 is a general diagrammatic view of the skin, after Heitzmann. It shows three divisions of the skin, viz., the epidermis or epithelial part; the corium or true skin or fibrous part; and the subcutaneous tissue, panniculus adiposus or fat layer. In the upper part of the corium, called the papillary layer, are the skin papillæ containing vessels and nerve terminations and lymph spaces, while the middle and deep layers contain the vascular plexuses, the hair follicle, its muscle, and sebaceous glands, and the tortuous sweat duct which traverses it to reach the sweat coil situated in the fat layer.

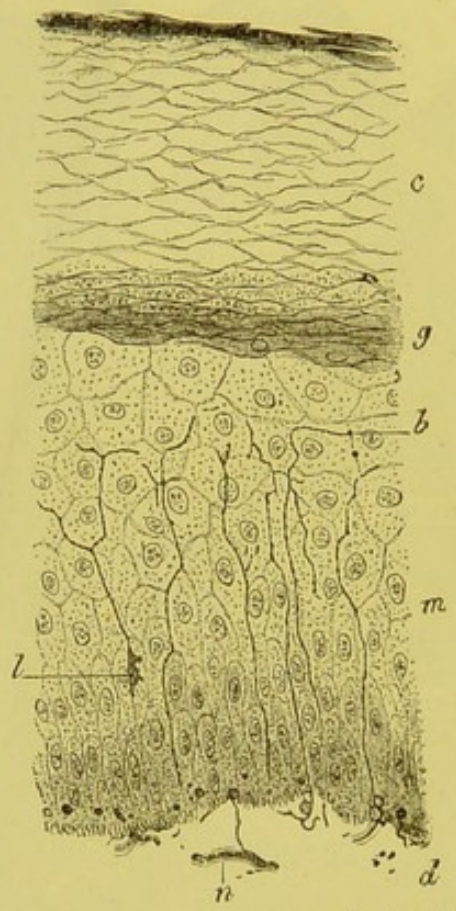


Fig. 2, from Ranvier's *Histology*, shows the three principal divisions of the epidermis, viz., the horny layer (*c*), the granular layer (*g*), and the rete Malpighii, the mucous or prickle-cell layer (*m*). To these some add a fourth layer, or stratum lucidum, which lies just above *g*, but it is only a subdivision of the horny layer. The lowest row of cells of the rete also are cylindrical and placed perpendicularly, and are sometimes called the "palisade layer." This figure also shows the nerve terminations in the rete ; *n* is the afferent nerve, *b* the terminal nerve bulbs, and *l* is a cell of Langerhans.

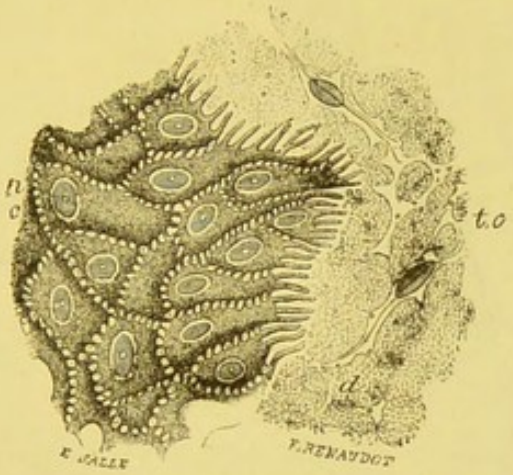


Fig. 3, from Ranvier's *Histology*, shows the cells of the rete Malpighii more highly magnified in order to demonstrate their prickle-like processes, which, at their junction with those of the neighbouring cells, leave small channels between the cells.

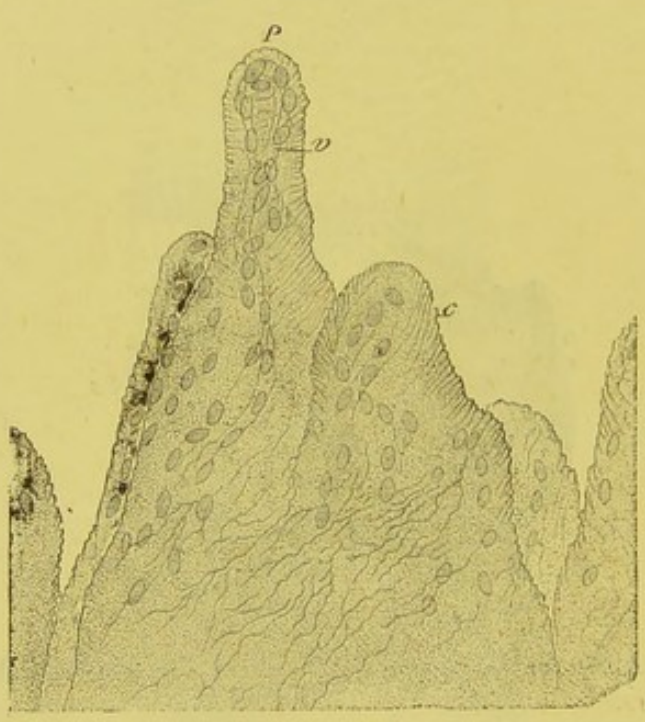


Fig. 4, also from Ranvier, shows the papillæ of the pulp of the finger after the epidermis has been detached by soaking in iodised serum : *P*, papillæ ; *v*, blood vessel ; *c*, papillary ridges. Other views of the papillæ are exhibited in fig. 5 and fig. 7.

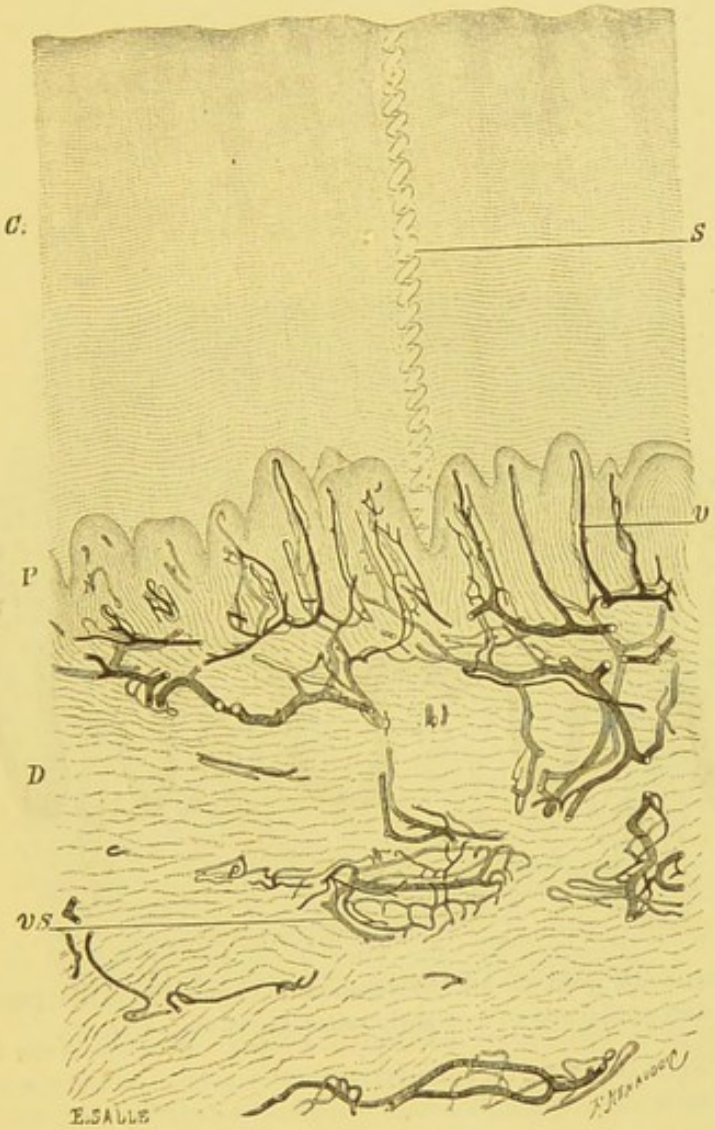


Fig. 5, from Ranvier, shows the arrangement of the blood vessels in the papillary layer of the corium: *c* is the epidermis traversed by a sweat channel, *s*; *d* is the corium; *p* points to the papillæ; and *v*, the arterial and venous capillaries of the papillæ, constituting the superficial or papillary plexus. This plexus also supplies the hair follicles and a "basket-like" plexus to the sebaceous glands. The drawing only shows a part of the other or deep horizontal plexus, which runs at the upper border of the subcutaneous tissue, and communicates with the superficial plexus by perpendicular vessels. The deep plexus supplies the sweat coils by means of a delicate plexus, as at *v s*, gives a single loop to the hair papilla and networks for the fat lobules.

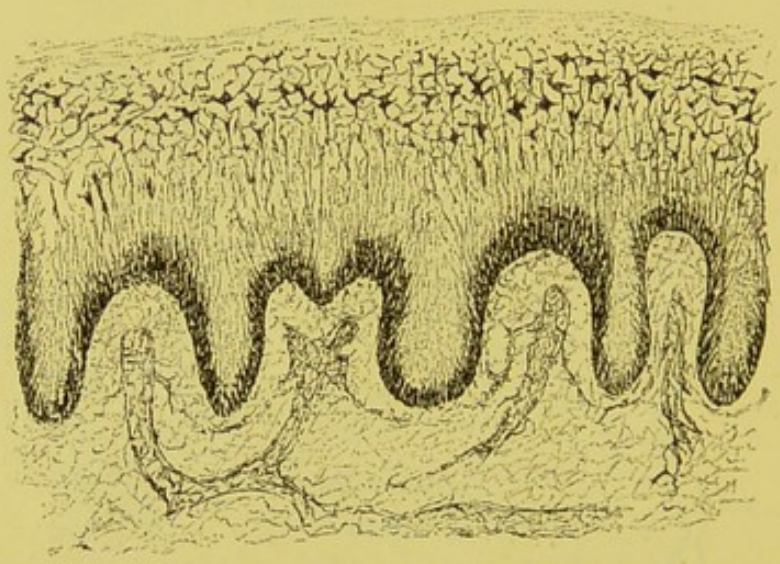
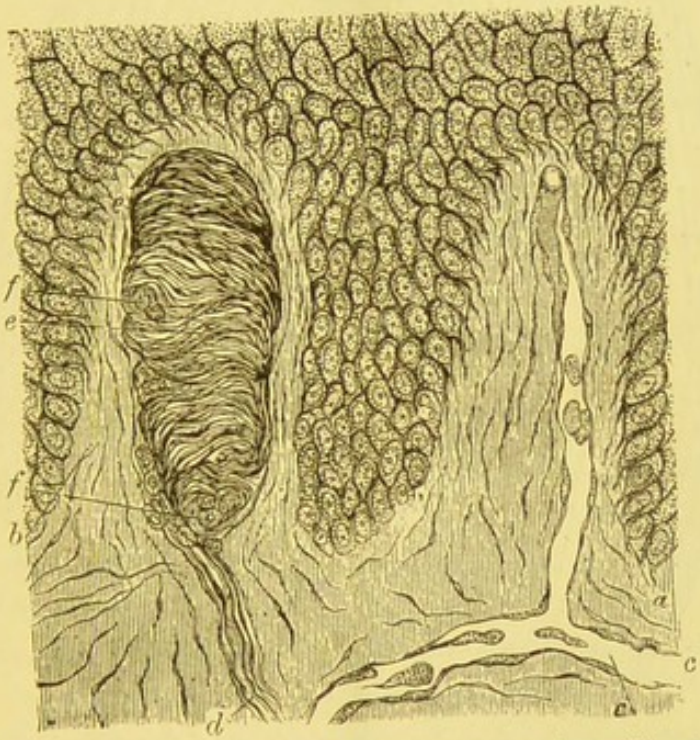


Fig. 6.—Staining with gold of all the lymphatic channels of the papillary layer and epidermis of a slightly œdematous skin (Unna).



Figs. 7 and 8 are to show the tactile and Pacinian corpuscles. Fig. 7 (Biesiadecki) shows *a*, a vascular, and *b*, a nervous papilla; *c* is a blood vessel; *d*, a medullated nerve fibre enclosed in a thick nucleated sheath; *e* is a tactile corpuscle; *f*, transversely divided medullated nerve fibres.

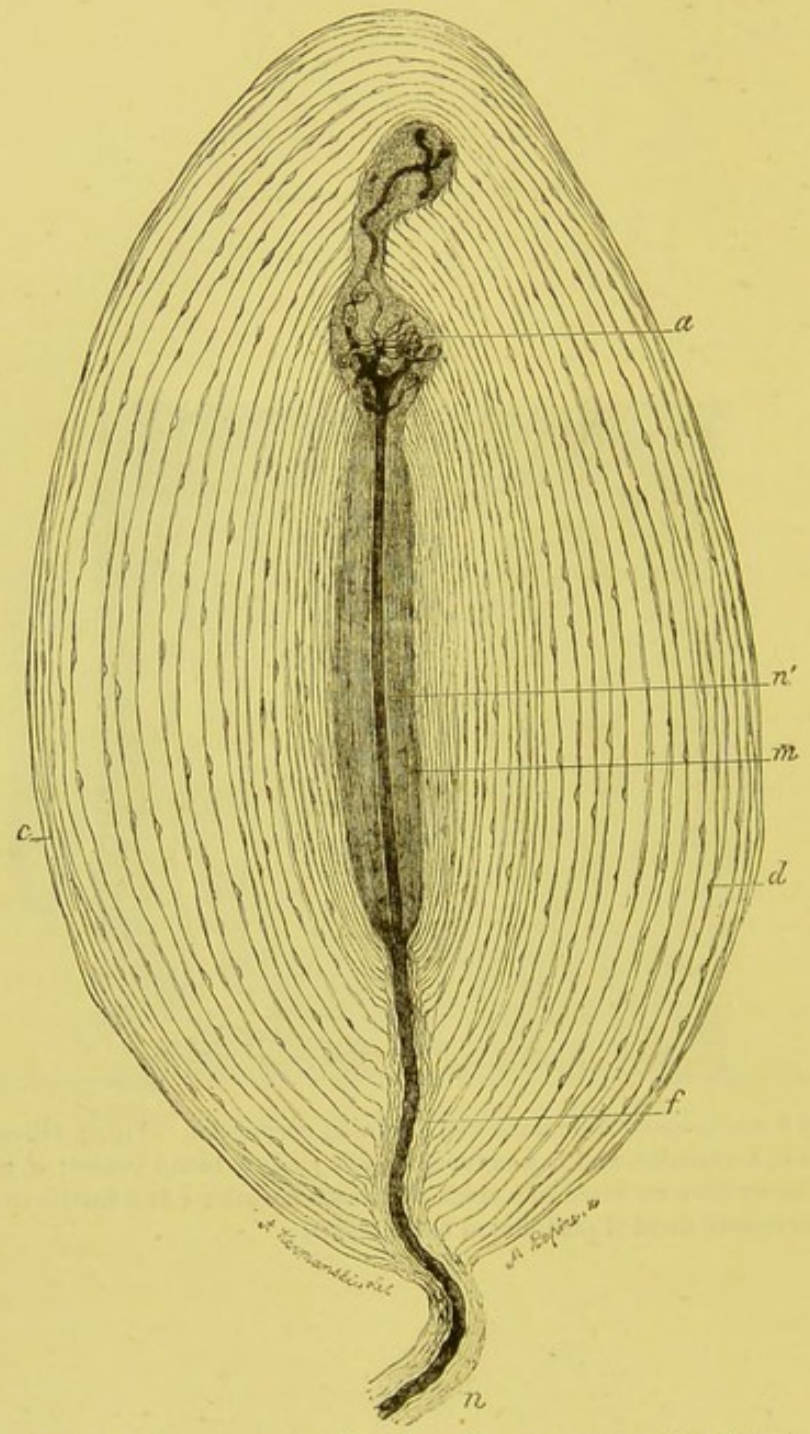


Fig. 8 (Ranvier), Pacinian corpuscle from the mesentery of a cat: *c*, capsules; *d*, endothelial lines which separate them; *n*, afferent nerve; *f*, funiculus; *m*, central club formation; *n'*, terminal fibre; *a*, point where one of the branches of the terminal fibre is divided into a great number of branches terminating in bulbs. The nerve terminations in the epidermis are shown in fig. 2.

ABBREVIATIONS

(Unless otherwise stated).

"Brocq" refers to *Traitement des maladies de la peau*, second edition (1892).

"Duhring" refers to *Diseases of the Skin*, second or third edition.

"Tilbury Fox" refers to his *Skin Diseases*, third edition.

"Hebra" refers to the Sydenham Society's translation of Hebra and Kaposi's great work on diseases of the skin.

"Hutchinson" refers to *Lectures on Clinical Surgery*, vol. i. (*On Certain Rare Diseases of the Skin*).

"Hutchinson's Archives" refers to the *Archives of Surgery*.

"International Atlas" refers to *International Atlas of Rare Diseases of the Skin*.

"Jamieson" refers to *Diseases of the Skin*, third edition (1891).

"Kaposi" refers to the second German edition (1883) of his *Pathologie und Therapie der Hautkrankeiten*.

"Kaposi-Besnier" or "Kaposi Besnier-Doyon" refers to the second French edition (1891), from the third German edition of Kaposi's work.

"Leloir and Vidal" refers to the *Traité descriptif des maladies de la peau* of those authors, of which only three parts have appeared.

"Schwimmer" refers to *Die Neuropathischen Dermatonosen*.

"Ziemssen" refers to *Handbook of Skin Diseases* volume of Ziemssen's *Cyclopædia of the Practice of Medicine*.

INSTRUCTIONS TO THE STUDENT.

THE portions that the student should read at first are the sections on semeiology, etiology, pathology, and diagnosis in the general part, while in the special part he should confine his attention to the most common diseases, such as he could see in a few attendances at an out-patient clinique, reading at first only the description of the typical features of each disease, the pathology without the anatomy, and the leading points in the diagnosis and treatment. The work is so arranged that he can readily do this, and the less important details can be subsequently studied as his clinical experience enlarges.

The diseases he will want at first are erythema intertrigo, erythema scarlatiniforme, erythema exudativum multiforme and its special variety nodosum, urticaria, eczema, impetigo contagiosa, boils and carbuncles, herpes varieties, pemphigus, psoriasis, lichen planus, purpura, ichthyosis, elephantiasis, molluscum contagiosum, lupus vulgaris, lupus erythematosus, scrofuloderma, syphilis, keloid, rodent ulcer, pruritus, miliaria, seborrhœa, comedones, acne vulgaris, acne rosacea, alopecia areata, sycosis, the various forms of tinea trichophytina, tinea versicolor, scabies, and the varieties of pediculosis.

It is by attempting too much at first that the student frequently fails both in examinations and practice, a useless smattering being often the sole result of his misdirected efforts. On the other hand, he should not begin to learn diseases till he has mastered the semeiology, which is as necessary as the alphabet is as a preliminary to reading.

(*For abbreviations see preceding page.*)

ERRATA.

Page 56, *after line* 39, Fungus foot of India, *add* Actinomycosis . . . . Skin and deeper tissues.

Page 464, line 7, *for* Herpes *read* Herpès.

DISEASES OF THE SKIN.

Part I.—General.

SEMEIOLOGY.

The symptoms of skin disease are objective and subjective, and they may be limited to the skin itself, or involve other parts, or even the whole organism.

In some instances the skin disease is the primary event, and the general disturbance secondary to it, as in cases of extensive and severe skin diseases, which lead to general vital depression, febrile disturbance, or marasmus. On the other hand,—and this is by far the larger class,—some internal derangement, functional or organic, as in disturbances of the alimentary canal, the uterus and ovaries, the kidneys, etc., leads directly or indirectly to the skin disorder. Every departure from health therefore, whether in the skin or elsewhere, must be duly examined into, and its relative importance considered.

OBJECTIVE SYMPTOMS.

These comprise the elementary lesions of the skin, and are divided into primary and secondary. A clear appreciation of the exact characters of these lesions is essential for accurate diagnosis. And the omission to master this "A B C" knowledge of the subject makes dermatology a sealed book for a large proportion of the profession.

PRIMARY LESIONS.

Maculæ. *Synonyms.*—Spots; Macules; *Fr.*, Taches; *Ger.*, Flecke.

Definition.—Macules are discolorations level with the skin, of various sizes, shapes, and tints.

Thus, their size may be from a pin's point to as large as the hand or more; they may be round, oval, or irregular, but most are roundish; they may be well or ill defined; less frequently are altered in density or consistence; but their most striking and variable feature is their *colour*, which is generally some shade of red, yellow, or brown. They may, or may not, disappear under pressure; may last a short or a long time, or even be permanent; and while some have subjective symptoms, most have none. They may also be primary or secondary.

In describing maculæ, regard must be paid to their size, colour, shape, definition, consistence, and changeability under the influence of time, pressure, or other conditions, and their subjective symptoms and mode of production.

Their causes are very numerous. They may be due to—

1. Hyperæmia, arterial or venous. This congestive kind of macula is red if arterial, bluish-red if venous, and always disappears under pressure, and when associated, as often happens, with some inflammatory swelling, is slightly raised above the surface, and although there is fluid exudation from the vessels, it is not more than can be soaked up by the cells and tissues of the epidermis and corium. The eruption, as a whole, is included under some form of **erythema**, or **roseola**, the latter term being applied to general **exanthemata**, as in that of typhus or syphilis. Another form is the red areola round inflammatory foci.

2. Extravasation of blood, and blood-colouring matter, into the skin gives rise to spots of various sizes and shapes. They are unaltered by pressure, are bright or purplish-red at first, but undergo bruise-like changes of colour, as absorption occurs. When in the shape of streaks, they are called **vibices**; when punctate, **petechiæ**; when of larger size, **ecchymoses**. They may occur as complications of inflammatory lesions. When blood-colouring matter alone escapes, yellowish, orange, or café au lait coloured patches are produced, which are generally due to partial mechanical venous stasis, and are common on the legs.

3. Under both congenital and acquired conditions, the vessels of the skin may become permanently dilated, or new vessels formed. The **capillary nævus** is an example of the congenital form ; stellate and other shaped **telangiectases** exemplify the acquired form. They may be accompanied by inflammatory or other lesions.

4. Changes in the pigmentation of the skin, either from excess or deficiency, may exhibit themselves in various forms of spots or patches, and may be congenital, as in moles, or acquired, as in lentigo or chloasma, or the flat form of xanthoma, in which there are other changes besides discoloration. They may also be secondary to other inflammatory changes, as in the stains left by lichen planus, most syphilides, etc. Diffuse pigmentations are not generally called maculæ, but are spoken of simply as discolorations of the skin, as in Addison's disease, malarial melanosis, argyria, bile staining, etc.

From loss of pigment, arise the white spots known as vitiligo or leucoderma ; white spots are also seen in morphœa and general scleroderma, but here there are other, more important changes, besides the loss of pigment.

Tropho-neurotic conditions also are often associated with whiteness of the skin, as in maculæ atrophicæ, glossy skin, etc. ; but in these cases there is diminished volume of the skin also.

Papulæ. *Synonyms.*—Papules ; Pimples ; *Fr.*, Papules ; *Ger.*, Knötchen.

Definition.—Papules are small elevations of the skin, not exceeding a split pea in size, nor visibly containing fluid.

Papules are always small ; a pin's point to a small pea represents their extremes in size. Their shape may be round, or angular at the base, convex or lenticular, acutely or bluntly conical, or even flat at the top. In colour, they are some shade of red, whitish, or yellow. They may be situated in the epidermis or in the corium, and connected with the papillæ, sweat, or sebaceous glands, or with the hair follicles. In describing them, therefore, regard must be paid to their size, shape, colour, and anatomical position in the skin, and to their mode of production and subjective symptoms. The tendency among the careless and ignorant is to make the term "lichen" synonymous with a papular eruption ; this should be carefully avoided, as it always leads to confusion, and when

employed without a qualifying term, as in "lichen planus," is utterly meaningless. A still more self-deceiving term is "lichenoid," which is only a cloak for ignorance.

Papules, when due to inflammation, may be :—acuminate, as in papular eczema, or flat and angular, as in lichen planus, and these may have a central depression ; others are caused by excessive hornification of the epidermic follicular lining, as in keratosis pilaris ; or by contraction of the arrectores, as in "goose skin," in which the papules are colourless ; and according to Auspitz, their permanent contraction produces prurigo papules. Papules may also be produced by the accumulation of sebum, as in milium and comedo ; by hæmorrhage into hair follicles, as in purpura papulosa ; and in the peculiar process of xanthoma. Some inflammatory papules—*e.g.*, some papular syphilides—are scaly ; others may go on to vesiculation or pustulation, as often happens in papular eczema. Papules vary much in duration, and may be acute, chronic, or permanent ; the last are non-inflammatory, as in milium. They may or may not be attended by itching, which is sometimes very severe.

Nodulæ. *Synonyms.*—Nodules ; Tubercles ; *Fr.*, Tubercules ; *Ger.*, Knoten.

Definition.—Nodules are elevations of the skin, from a split pea to a hazel nut in size.

Nodule is preferable to the older term "tubercle," as it may be confused with pathological tubercle.

The definition requires some qualification, as size is not the only criterion in all cases, though it is so as a rule. Thus, on the one hand, tubercle is employed for the discrete lesions of lupus, tertiary syphilis, and leprosy, even when they are smaller than a split pea ; and on the other, many neoplastic growths of small size are called tumours, which from their size alone might be called nodules, for authors are not strict in their discrimination between a tumour and a nodule. Hence it has been proposed to restrict the term to cellular infiltration (granuloma of Virchow) in a nodular form in the skin, not larger than a hazel nut. Nodules of this character often go on by peripheral extension and coalescence to an **infiltration** in which the corium is permeated, or replaced, by granulation cells, in diffused instead of nodular masses, slightly elevated as a rule, with sharply defined borders, and flattish

surface. When of inflammatory origin, the colour is usually red, or brownish-red, but small tumours may be of any colour. Their size, shape, colour, consistency and course, are the points to be specially noticed.

Tumores. *Synonyms.*—Tumours; *Fr.*, Tumeurs; *Ger.*, Geschwülste.

Definition.—New growths of all kinds, from a pea and upwards in size.

There is no limit to the size of tumours in an upward direction. The shape also is equally variable, though, unless compound, they are generally roundish. They are generally, but not always, well defined; may be sessile or pedunculated, with broad or narrow, superficial or deep attachments. They are raised to a very variable extent, movable with the skin, or fixed to deeper parts, and may, or may not, be attended with itching, tenderness, or pain.

Their causes are very various. As they may take their origin from any part of the skin, its vessels or appendages, the colour may or may not be altered. The chief points to be observed are, the size, shape, colour, elevation, vascularity, mode and depth of attachment, movability, subjective symptoms, and, where possible, the part of the skin in which they originate.

Vesiculæ. *Synonyms.*—Vesicles; *Fr.*, Vésicules; *Ger.*, Bläschen.

Definition.—Vesicles are elevations above the surface of the skin, from a pin's head to a hemp seed in size, with free contents of serous fluid.

Vesicles are produced by elevations of the upper layers of the epidermis by fluid, which may be forced upwards from below, either by mechanical or inflammatory pressure. They may arise directly on the surface, as in miliaria; or on the top of an inflammatory base, diffuse or papular, as in eczema. Their contents may be clear, turbid, or more or less blood-stained. They are generally tense, but the large ones may be flaccid; most of them rupture, as in eczema, but in many, the contents are either absorbed or dry up without rupturing, as in sudamina or herpes. Their shape is, if discrete, roundish at the base and convex or acuminate at the top, or they may be pitted, as in the vaccine

vesicle. They may be quite superficial, as in sudamina, or deep-seated, as in lymphangiectodes; consist of one or more chambers, as in herpes or varicella; be discrete or coalescent. They are generally inflammatory, but are not so in sudamina or lymphangiectodes; are usually of short duration, and either rupture, or the contents dry up, become absorbed, enlarge into blebs, or pass into pustules. Anatomically, they may be situated between the horny layers, between the mucous and horny layers, or in the mucous layers, while in lymphangiectodes they are in the lymphatics of the corium. As a rule, they tend to group in various ways, may remain discrete or coalesce, and being generally acutely inflammatory, are very often attended with burning and itching. The points to be observed are, their size, colour, contents, base, depth, mode of evolution, course, duration, the subjective symptoms, and, if the contents are evacuated, the condition of the skin beneath.

Bullæ. *Synonyms.*—Blebs; *Fr.*, Bulles; *Ger.*, Blasen.

Definition.—Blebs are vesicles which are as large as, or larger than, a pea.

Like vesicles, they are generally formed in the middle and deeper layers of the rete, and their roof is formed by the remaining layers of the epidermis, but sometimes the whole epidermis is elevated.

They vary in size, from a pea to a large hen's egg; the smaller and medium-sized bullæ are generally roundish or oval, but when very large, being often formed by several coalescing, they are irregular in outline. They have usually tense, strong walls, and therefore seldom rupture spontaneously, the contents drying up; but they may be flaccid, as in pemphigus foliaceus, and rupture early in their development. The contents are usually clear, straw-coloured, consisting of serum, and therefore alkaline and albuminous, but sometimes there is sero-pus, pus, or blood. Bullæ, as a rule, have no areola unless they contain pus, rising abruptly from the healthy skin, but they are usually preceded by a transitory redness. Often no special sensation, except that of tension in the fully formed bulla, attends them; but occasionally, as in hydroa, there is intense itching. Blebs are the prominent symptom in pemphigus, hydroa, pompholyx, and herpes iris; are frequent in leprosy, syphilis, and erysipelas; and may be present

occasionally in erythema exudativum, urticaria, measles, and in vesicular diseases such as eczema and herpes; in short, they may occur as an accident, so to speak, in almost any acute inflammatory affection of the skin.

The points to be observed are, their size, shape, contents, duration, and, after rupture, the condition of the exposed surface.

Pustulæ. *Synonyms.*—Pustules; *Fr.*, Pustules; *Ger.*, Pusteln.

Definition.—Pustules differ from vesicles and blebs only in containing pus.

Pustules sometimes arise directly, but generally develop from vesicles or papules, and various intermediate conditions are therefore often simultaneously present. They are always of inflammatory origin, and unless blood-stained, of a yellowish colour, and have, as a rule, a red areola, sometimes with induration, as in boils; most of them are round and convex, sometimes umbilicated, as in variola, but some are pointed, others flat and irregular, as in ecthyma; these, and indeed the majority, arise in the papillary layer, but they may be formed round the sebaceous glands, as in acne; round the hair follicles, as in sycosis; or deep in the corium, as in boils. Their course is generally acute and they usually rupture, the contents concreting into a firm crust, yellowish, greenish, or brownish if blood-stained; or they may dry up, and the crust is then less discoloured, and friable. In either case, a scar may be left if the process is deep enough. Pustules are often painful and tender, sometimes attended with burning, but seldom with itching. The points to be noted are, their size, shape, colour, mode of evolution, anatomical position, base, course, and sequelæ.

Pomphi. *Synonyms.*—Wheals; Urticæ; *Fr.*, Plaques ortiées; *Ger.*, Quaddeln.

Definition.—A wheal may be described as a circumscribed œdema of the corium, producing a flat elevation of the epidermis at that point.

A wheal may be artificially produced by injecting a drop of water underneath the skin. Usually wheals are the result of angio-neurotic irritation, external or internal, leading to the sudden outpouring of serum from the vessels; this is followed immediately by

a spasmodic contraction of the capillaries. On the spasm ceasing, the released capillaries take up the fluid again, and the wheal subsides. They are very variable in size, from a pin's head to a goose's egg, flatly convex as a rule, but the very large discrete ones are hemispherical; if large from coalescence only, they then form elevated patches. The outline is irregular, often determined by external causes, *e.g.*, scratching. The colour is usually whitish in the centre with a pink areola, or when the tension is not so great, rose-red all over, less frequently, with an anæmic white areola; occasionally they are purple, from hæmorrhage into them. They are evolved very rapidly, in a few minutes or even seconds, and as a rule last only a few hours or days, but are occasionally persistent. They may go on to the formation of bullæ, or leave behind them pigmentation, inflammatory papules, or even large lesions, as in urticaria pigmentosa. They are always attended with severe tingling or itching, are the characteristic lesions of urticaria, but may be produced as a local condition, *e.g.*, from the stinging-nettle or rhus poison, the bites of insects, etc. The points to be noted are, their size, colour, mode of evolution, duration, sequelæ, and their local or constitutional origin.

SECONDARY LESIONS.

Squamæ. *Synonyms.*—Scales; *Fr.*, Squames; *Ger.*, Schuppen.

Definition.—Scales are dry, laminated exfoliations of the epidermis.

Scales may be, and usually are, the result of an inflammation, in which proliferation rather than exudation is the main feature. Or they may be due to preternatural dryness of the skin, as in seborrhœa sicca and xeroderma. Or again, they may be the sequel of a previous acute hyperæmia, as in erythematous eruptions, especially those of scarlatina and erysipelas, when the most superficial layers of the epidermis are thrown off.

They may be very small and branny, as after measles, or in pityriasis rosea, or in dandriff; or very large and thin, as in pityriasis rubra; they may be in a single layer, as in eczema squamosum; or adherent into crusts, as in psoriasis; silvery, white, or grey, as in the last disease; or dirty yellowish-looking, as in many

syphilides and ichthyosis. They are dry and brittle unless mixed with exudation. When due to inflammation, they are usually on a more or less reddened base, unless in the form of desquamative sequela. Their quantity may be very small, or they may be shed literally in quarts per diem, as in severe pityriasis rubra. The points to be noted are, their size, colour, quantity, being separate or in crusts, their presence as a symptom or a sequela of the lesion.

Crustæ. *Synonyms.*—Crusts; *Fr.*, Croûtes; *Ger.*, Borken, Krusten.

Definition.—Crusts are irregular dried masses of exudation, or other effete products of disease.

Crusts vary much in appearance, according to their amount and origin. They may be adherent or loose, according to their age and the condition of the surface on which they rest. They may be thin and flat, or thick and craggy, according to the quantity and nature of the exudation from which they originate.

As a rule, crusts are the result of dried inflammatory exudation, consisting mainly of serum, pus, or blood mixed with epithelium.

They may, however, be chiefly composed of fat and epithelium, as in seborrhœa, and are then greasy, light yellow when recent, dirty yellow or blackish when old; they are flat and adherent, but can easily be peeled off; or they may consist of fungous elements, yellow and powdery, as in favus, or claylike, as in some tropical fungous diseases. Inflammatory crusts of serous origin are light yellow, friable, and translucent, as in eczema and impetigo contagiosa in the serous stage, while the purulent crusts of the same diseases are thick, dark, and dirty-looking, and firmer in consistence. In ulcerating syphilides, they may be in layers, very thick, firm and greenish, while blood-crusts are of a dirty red, brownish, or blackish hue. All crusts follow in outline the excoriated surface on which they rest, and when the exudation is free and thin, they are soon thrown or rubbed off, while, when it is thick, they may get heaped up by the drying of successive layers as the ulcer extends, as in the limpet-shell crusts of rupia.

The points to be noted are, their thickness, colour, size, consistence, adherence, composition, and the condition of the surface beneath them, for which of course their removal is essential.

Excoriationes. *Synonyms.* — Excoriations; *Fr.*, Excoriations; *Ger.*, Hautabschürfungen.

Definition.—Excoriations are lesions in which, as a rule, the surface is denuded only as far as the stratum mucosum; they heal therefore, without leaving scars. The shape, depth, and extent depend upon their mode of production, which, apart from superficial wounds from mechanical causes, is mostly by the nails in scratching; hence they are encountered most frequently and are most developed in pruritic diseases. The excoriations of the nails consist of puncta, which soon get scabbed over, from the decapitation of the follicular prominences of the skin; lines of scratching, superficial or comparatively deep, in which the epidermis is more or less torn up in places; these, when recent, are surrounded by an areola, which may be swollen into a wheal, and excoriated, soon becoming scab-topped papules developed secondarily from the constant irritation of the nails. Other lesions, directly or indirectly due to scratching, are ecthymatous pustules, eczematous patches, enlargement of the neighbouring lymphatic glands, and when the pruritus is of long standing, thickening and pigmentation of the skin. All these symptoms go to make up the "**scratched skin**" in its highest development, but they are not all present except in severe and chronic cases, the number and extent depending upon the vigour of the scratching. Although this "scratched skin" is really a compound of various lesions besides excoriations, the group occurs so frequently that it may, as a whole, be considered to be a symptom of many diseases, such as prurigo, urticaria papulosa of infants, pediculi corporis, scabies, etc. The position, extent, and arrangement of the lesions are of diagnostic importance in a large number of instances.

Rhagades. *Synonyms.*—Fissures; *Fr.*, Fissures; *Ger.*, Rhagaden, Hautschründe.

Definition.—Rhagades are linear cracks in the skin, whether due to injury or disease.

Fissures are produced in the parts where there is most movement, whenever, as the result of inflammation or other cause, the elasticity of the skin has been impaired. Their most frequent position is on the palmar and plantar surfaces of the hands and feet, the angles of the mouth and anus, and the flexures generally. They usually occur along the natural lines of

flexion or other movement, as may be seen on the palms and soles in the so-called eczema rimosum, at the angles of the mouth and anus in congenital syphilis, or in chronic eczema of the lips; but, of course, any other cause, such as local irritation producing tension, with loss of elasticity, will produce them. They are painful on movement, especially when they extend to the corium.

Ulcera. *Synonyms.*—Ulcers; *Fr.*, Ulcères; *Ger.*, Geschwüre.

Definition.—Ulcers are losses of substance of the skin, extending into the corium and produced by disease.

The size is quite indefinite; the shape variable, the most common being round, but it may be reniform, irregular, or serpiginous. They may be deep or shallow, with steep or sloping sides and smooth or irregular base; the edges may be sharp or rounded, everted or undermined; the surface bleeds readily, is clean or sloughy, covered with pus or serum only; most crust over if left to themselves, but some keep up a continual discharge of varying amount, which may be offensive or not, and is usually greyish or yellowish, but sometimes sanious. Apart from injury, they are usually the result of lupus, syphilis, struma, lepra, malignant tumours, boils, or carbuncles. Varicose veins are a favouring condition for their occurrence on the lower extremities, where they are very common. They are generally painful, exquisitely tender, and their duration and course are very variable, depending upon a variety of conditions; their tendency, unless malignant or circumstances are unfavourable, is towards healing, but they always leave a permanent scar. The points to be noted are, their position, size, shape, depth, edge, sides, floor, secretion, and course.

Cicatrices. *Synonyms.*—Scars; *Fr.*, Cicatrices; *Ger.*, Narben.

Definition.—Scars are connective tissue new formations replacing losses of substance, which extend as far as the corium. Whatever may be the cause of loss of substance, whether injury or disease, healing can only take place by cicatrisation, in which the hairs, glands and papillæ are absent, but there are vessels and nerves; the resulting scar varies according to the depth of the lesion.

The lesion need not, however, produce ulceration, as in some

forms of lupus and syphilis, when the normal skin is infiltrated and replaced by cells, which may undergo absorption, and the result is a scar, without any breach of surface; or when the skin is over-distended, as in lineæ albicantes; or when there is pressure, as in favus, in which the growth of the fungus digs into the skin. All these are examples of atrophic scarring, and the cicatrix is thin, white, glistening, and pliable. When the ulcer extends deeply into the tissues, as in burns, the scar will be contracted, thickened into bands, and adherent to subjacent tissues, and there are intermediate conditions. The scar may also be raised much above the surface, from increase of connective tissue, and form "hypertrophic scarring," or go on to the condition known as keloid. They are thus of all shapes, sizes, and thicknesses, raised or depressed, in bands, knots, lines, or spots, smooth or puckered. Their colour is usually whitish and glistening when they are old, but they are red at first, and may remain so, or become purplish or pigmented. Scars are not often attended with subjective symptoms, but may itch or be painful, especially when a nerve twig is implicated in them.

The history of scars should always be carefully inquired into, as, when not due to injury, they are often of great diagnostic importance, the great majority being due to lupus, syphilis, or struma. The points to be noted are, their position, size, shape, colour, texture, and mobility.

Stains. Various eruptions leave stains behind them; these are generally produced by the escape of blood-colouring matter during the inflammatory process. Syphilides are especially noted for this, but many others also, as lichen planus, leave very dark pigmentation, while exudative erythemas, psoriasis and many others, as a rule, leave only a red mark which passes off in a week or two.

SPECIAL LESIONS.

There are a few lesions of special characters, which do not come under any of these heads, such as warts, horns, burrows of the acarus scabiei, etc., which will be explained in their special sections.

GENERAL SYMPTOMS.

The several lesions having been examined individually have now to be considered collectively. A single group, or separate area of disease, is "a patch," while the patches taken altogether constitute the eruption.

Distribution—Cleavage. The arrangement of the lesions in the patch, and the relations of the patches to each other, are governed to a certain extent by laws; and although we do not yet thoroughly understand them, some light has been thrown on the subject by the studies of C. Langer* and S. Swerchesky† with regard to what is known as the "cleavage" of the skin; while O. Simon‡ has treated the whole subject.

When a round awl is thrust into the skin, Langer found that the skin was split into linear clefts in most parts, though in some a triangular or ragged hole was produced, *e.g.*, on the scalp, forehead, chin and epigastrium. This he called "cleavage," and it was said to be complete in the first case and incomplete in the second; and the difference depended, he found, upon the arrangement of the connective tissue bundles, which in complete cleavage ran mainly in one direction, and in incomplete cleavage ran pretty equally in different directions. Further, when the whole body was thus punctured in rows at equidistant intervals, the surface was mapped out into lines which indicated the general direction of the fibres in each region, and he found that these lines of cleavage ran, for the most part, obliquely to the axis of the trunk, sloping from the spine downwards and forwards, in the direction of the ribs at the upper two-thirds, but more horizontally lower down. In the limbs, they were for the most part transverse to their longitudinal axis, and there were sub-variations in different regions, *e.g.*, circular girdles at the shoulder. The blood-vessels also, were found by Tomsa to form circulatory planes where the cleavage was uniform, but where it was indefinite, the vascular trunks were very tortuous, and ran vertically upwards, forming globular areas of distribution. This cleavage, or more directly the

* Langer, *Sitzungsberichte der kais. Akad. d. Wiss.*, Wien., 1861, bd. xliv. and xlv.

† *Annales de Syph. et Derm.*, July 1871.

‡ *Die Localisation der Hautkrankheiten histologisch und klinisch bearbeitet*, mit 5 Tafeln. Berlin, 1873.

vascular distribution consequent on the cleavage, has been found to correspond in many respects with the arrangement of the groups of individual lesions. These may take various forms,

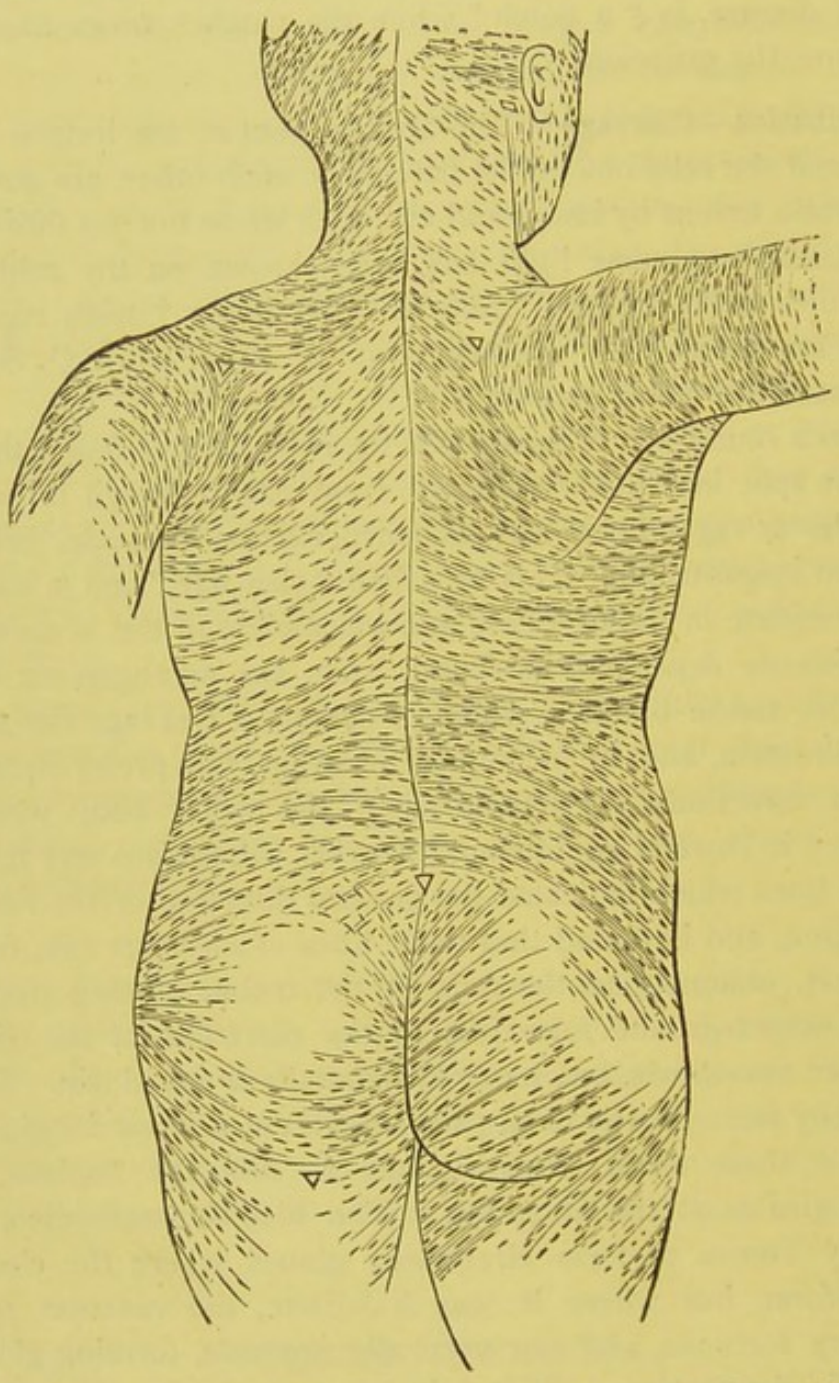


Fig. 9.—Diagram of the lines of cleavage of the skin (Langer).

of which circles, segments of circles, concentric circles, with or without punctate centres, and ellipses are some of the most common, while connecting lines of eruption between the papules also run in the cleavage direction.

The vaso-motor centres which preside over definite areas are, in my belief, an important element in governing the distribution of eruptions. One of the most important of these vascular areas is that of the head and neck down to just below the clavicle, the fore-arm, back of the hand, and the lower two-thirds of the upper arm on the extensor side, sloping down to the lower third on the inner side. This distribution is preserved in the great majority of cases of xeroderma pigmentosum, and it is usually accounted for by saying that it is the region exposed to the sun and air. But this is not strictly true; the lesions extend beyond the exposed part, and an exactly similar distribution may often be seen in eczema in adults of both sexes where there has not been any exposure either so low in the neck or so high in the arms. Another area is in the lower part of the back and upper part of the thighs. Many cases of extensive moles have this distribution, called sometimes the "bathing-drawers area." Counter irritation over the cervical and lumbar enlargements respectively often exhibits a distinct influence on inflammatory eruptions in these regions. The part of the cheeks called by Hutchinson the "flush patch" is another such area. These are only examples, as the subject cannot be pursued further here. I have observed, however, that the area of anæsthesia, after cord or single nerve injuries, often corresponds with the distribution of inflammatory and other eruptions, and both neurology and dermatology might give to each other much assistance by the further study of these relationships.

Eruptions may be symmetrical or unsymmetrical, with regard to the two halves of the body; unilateral, especially when owning a direct nervous distribution, as in herpes zoster, some cases of morphœa, ichthyosis hystrix, and some of the eruptions of anæsthetic leprosy. Other terms that require explanation are "universal," which signifies, not only that every region is affected, but that there is no intervening healthy skin between the lesions, as in pityriasis rubra; while an eruption may be said to be "general" when every region is affected, while there are some healthy areas, as in the worst cases of psoriasis. On the other hand, an eruption may be "localised" to one or two regions; it may be "aggregate," *i.e.*, crowded together; or "disseminate," *i.e.*, scattered irregularly over the body. Patches or lesions may also be "discrete," *i.e.*, separate; or they may be "confluent."

If in circular patches, or segments of such circles, the eruption is called "circinate"; if in rings, "annulate"; or if two rings meet and coalesce they are always broken at the point of contact, and "gyrate" figures are produced, as may be seen in vegetable parasitic eruptions. When a disease creeps slowly at one border, clearing up at the older part, it is said to be "serpiginous," as in the "serpiginous ulceration" of tertiary syphilides; or if the border is very abrupt, it may be called "marginate," as in erythema marginatus; while sharply defined patches are called "circumscribed." Small lesions the size of a millet seed are called "miliary," and when the size and shape of a split pea, "lenticular." There are many other qualifying terms, but their meaning is obvious. Such are those relating to the "age" of the patient, *e.g.*, prurigo senilis; the "general colour" of the rash, *e.g.*, erythema iris, or lichen ruber; the "special region" affected, *e.g.*, eczema palmare; the "age" of the rash, "acute," "chronic," "transitory."

Any others in less common use will be explained, if necessary, as encountered in the several diseases.

In this section, therefore, the points to be noted are the extent and general arrangement of the eruption, the shape and size of the patches, and the relation of the individual lesions to each other; their aggregation or otherwise, and the duration of the whole rash; its general course, and the age of the patient.

SUBJECTIVE SYMPTOMS.

Subjective symptoms may be present or absent, and of all grades of intensity. Pain, tenderness, heat, tingling, itching and smarting, are the symptoms often met with, chiefly in inflammatory disorders; and pain is the chief symptom in phlegmonous inflammations and new growths of malignant character. The most common symptom is itching, which may be very slight or severe, and may be due to the direct effect of the lesion, or reflexly neurotic, as in many forms of pruritus. Formication is a modification of pruritus, and the sensation of tingling is closely allied to it. Anæsthesia or loss of sensibility, and hyperæsthesia or exalted sensibility, are rarely met with in diseases of the skin. Hypertrophies, atrophies, hæmorrhages, and benign new growths are seldom attended with subjective symptoms.

ETIOLOGY.

THE subject of the causes of cutaneous disease is a complex one and must be discussed under several heads.

A disease of the skin may be symptomatic or idiopathic. It may be so entirely symptomatic, as not to require separate treatment apart from the general condition to which it is due, as in the exanthematic eruptions belonging to the acute specific diseases, such as scarlatina and measles, or the early eruptions of the chronic specific diseases, such as syphilis and leprosy, polymorphous erythema, the xanthoma of the diabetic, the eruptions of scurvy, etc.; or, while it may be due to a general or local internal derangement, both the skin and the offending organ must be treated as in gouty eczema, dyspeptic acne, and the like. In idiopathic diseases, the departure from health either originates in, and is confined in its effects to, the skin itself, or appears to be so, as not infrequently the real cause eludes our observation. This includes all local diseases, *e.g.*, many hypertrophies and atrophies, and those dependent on external causes generally.

The causes predisposing to or directly producing cutaneous disease may be classified into—

Hygienic conditions, general and personal, and the—

Constitutional conditions, family and personal, to which the individual may be subjected.

GENERAL HYGIENIC CONDITIONS.

The general hygienic conditions are climate, soil, abode, and seasons.

Climate.—It is very difficult to show the exact influence of climate, and few are only a matter of temperature, as with it so many other conditions are changed, such as race, habits, soil, diet, etc.

Yaws, leprosy, one form of elephantiasis arabum, phagedæna tropica, Delhi boil and its congeners, are mainly tropical; verrugas is a disease of Peru; pinta, of Central America; tinea imbricata, of Oceana; pellagra, mainly of Northern Italy.

Eczema is nearly always aggravated by sea air, and exposure to north-east winds will often determine an attack in a predisposed person ; and indeed, even without exposure, the patient can often recognise by his sensations a deleterious change of wind.

Soil.—With the exception of that due to malaria, little is known with regard to the influence of soil on skin disease ; urticaria, herpes febrilis, and melanotic pigmentation are not infrequent in connection with ague, especially in severe forms. Less common are roseola,—a large macular erythema, either on the limbs only, or general, and sometimes hæmorrhagic,—petechiæ, and other forms of purpura ; while boils, carbuncles, and noma are occasionally met with.

The Abode may be insanitary and close, and produce strumous affections ; pemphigus neonatorum generally, and boils often occur where the air is contaminated from sewer gas or other foul emanations, and in any case nutrition and vital resistance are lowered, and the occurrence of skin and other diseases favoured.

Seasons.—These exercise considerable influence ; thus, in the spring, erythema multiforme is particularly liable to occur or recur ; while on the supervention of warmer weather, hydroa æstivalis and urticaria papulosa, which had been quiescent in the cold weather, begin to recrudesce ; psoriasis also often becomes active in the spring. Prurigo varies, some cases being worse in summer, some in winter. Prickly heat is only a disease of very hot weather. In autumn, erythema multiforme is only a little less common than in spring. In winter, many diseases are aggravated, notably lupus, ichthyosis, eczema, and many other inflammatory diseases ; while chilblains, pruritus hiemalis, and Raynaud's disease are especially diseases of cold weather. There is, however, a summer pruritus, which is less common than the winter form. Sudden alternations of heat and cold, and extremes of either, are fruitful exciting causes of a large number of eruptions, producing them either *de novo* or by recrudescence.

Personal hygiene includes many causes of disease, such as :—

Occupation, which often plays an important part, chiefly in the production of what are called professional dermatoses ; thus there is the large class of trade eczemas, such as baker's, grocer's, bricklayer's, barmaid's, and washerwoman's itch, due either to handling powders or to always having the hands wet. Workers in chemical or dye factories, or with arsenic or bichromate of potash, are liable

to dermatitis in various forms, from the irritating influence of the materials in use. Callosities from hard manual labour are well known. Various sweat eruptions are seen in those exposed to heat and moisture, as in pianoforte-makers.

Clothing may be unsuitable, either in make or material, *e.g.*, badly-made boots produce corns or blisters; tight bands produce chafing or excoriations; dyed stockings often excite papular and eczematous eruptions; flannel excites pruritus in some skins, and if worn too long without washing favours the development of tinea versicolor and seborrhœa corporis.

Uncleanliness is a favouring rather than an exciting cause of cutaneous disease, especially for parasites, both vegetable and animal. On the other hand, the constant stimulation of the skin by the too frequent use of soap, especially if not carefully made, is liable to excite eczematous eruptions. Washing without great care in drying is a frequent cause of chapping, and vapour baths may excite miliaria. Where eczema exists it is nearly always aggravated by water.

Food, improper in quality or quantity, is an important factor in the production of a large number of diseases. It may do this, if inadequate in quantity or quality, by lowering nutrition generally, or by its directly irritating effects on the gastro-intestinal mucous membranes. Or it may be of a quality which promotes fermentation in the alimentary substances in the stomach. As examples, may be given the use of starchy food in young infants, which often remains undigested, and acts injuriously, both by lowering nutrition and acting as an irritant, especially when there is intestinal catarrh; the effect of taking food containing branny particles, such as brown bread, oatmeal, etc., on eczematous and urticarial patients; and the influence of beer, pastry, etc., in exciting fermentation. More direct, is the gastric irritation produced by shell-fish, especially mussels, which excite violent urticaria in some people. Then again certain diseases are ascribed to food, as pellagra to the consumption of decomposed maize, leprosy to decomposed fish, but the latter is not generally accepted.

Medicines. — Many drugs produce erythematous and urticarial eruptions when taken internally, which are referred to in detail in the section on drug eruptions; and a few, like iodine and bromine, produce eruptions of a special character.

Irritants.—Many drugs and other substances, when brought

into contact with the skin, excite inflammation in it. Cantharides, turpentine, mustard, croton oil, and arnica may be cited as examples.

Scratching is only another form of external irritation; the lesions it produces have already been detailed under Excoriations. It is, however, only where the itching is very severe, as in that produced by scabies, pediculosis, or prurigo, that the worst effects of scratching are produced. In senile pruritus, for instance, the skin is rarely injured to any material extent.

Contagion is responsible for not a few skin diseases; animal and vegetable parasitic diseases, impetigo contagiosa, the exanthemata, early syphilides, glanders, and malignant pustule, are some of the contagious or inoculable diseases.

RACE AND FAMILY CONSTITUTIONAL CONDITIONS.

Race.—Very little is known of the effect of race apart from endemic conditions, special customs, and personal habits of different races. Negroes are certainly more liable to yaws and keloid than the white races, and, according to * Morrison of Baltimore, less liable to lupus and acne, and their skins are less sensitive to external irritation. The grave affection idiopathic multiple pigmented sarcoma appears to occur chiefly among the Jews, and those mostly from Poland and Galicia; but this may be more a matter of habits and of local causes than a racial peculiarity. Leucoderma also is more common in coloured races; but here again they are more exposed to the sun, and the contrast makes the affection more noticeable.

Heredity † exercises an important influence in the production of disease; in some, as syphilis, the disease when in an active condition in the parent is almost certain to be conveyed to the child; in others, as psoriasis and ichthyosis, the transmission is uncertain. If there are several children, some will probably be affected while others escape; on the other hand, in the majority of cases of these diseases there is no evidence of heredity. The

* *Personal Observations on Skin Diseases in the Negro.* A paper read before the Amer. Derm. Soc. Congress, 1888.

† *The Pedigree of Disease*, by J. Hutchinson (London: 1884), may be consulted for a more complete account of the subject.

heredity of leprosy is a disputed point, though there is a preponderance of evidence in its favour. Eczema is probably not at all hereditary; but states predisposing to it, such as gout, feeble digestion, etc., are so. Some diseases are only occasionally hereditary, such as xanthoma, premature baldness, tylosis palmæ. In some instances of heredity there is a tendency to be limited to one sex in the family through several generations.

Family prevalence may or may not be associated with heredity; and here again the family liability is often confined to one sex. Of this, the rare affection xeroderma pigmentosum is an example —*e.g.*, in a family of eight boys and five girls, seven of the boys and no girls were affected, while no instance of heredity is known. Ichthyosis is another example, in which there may or may not be heredity and family prevalence often limited to one sex.

PERSONAL CONSTITUTIONAL CONDITIONS.

Sex exercises a certain influence. This may be dependent upon anatomical peculiarities. Thus, it is obvious that sycosis can only occur in a male, and Paget's disease of the nipple in a female. On the other hand, it is not always so—*e.g.*, lupus erythematosus is much more common in women, and epithelioma is more common in men. The different habits of the two sexes no doubt also play a part. Thus, the minor form of acne rosacea is more common in women, from their greater liability to dyspepsia and constipation, owing to their sedentary habits, and partly, perhaps, that uterine derangement is another exciting cause of acne rosacea; on the other hand, the worst forms are seen in men, from their more frequent intemperance and exposure to severe weather. The special conditions affecting women at different periods of life are described under the effects of age.

Age.—The influence of age may be considered under two aspects. First, as regards merely the duration of the life of the individual; and, secondly, as regards epochs or events which occur at different periods. Speaking generally, in early life there is a greater tendency to the more acute forms of inflammation and to overgrowth; in old age, to lower forms of inflammation and to degenerative and atrophic diseases. In infancy, eruptions are more likely to take a pustular form, and from the ease with which the

alimentary canal is deranged, there is a greater liability to eczema or urticaria.

In the first three months of life, congenital syphilis generally shows itself; at the end of the first year, ichthyosis generally begins, though it may be earlier, and even be congenital. In the second year, begins xeroderma pigmentosum. Psoriasis is very rare under three years old, and not common under five years. Ringworm of the head occurs in childhood only, for the most part, while tinea versicolor is hardly ever seen in childhood; on the other hand, vegetable parasitic diseases are rare after fifty. Acne rosacea begins to be prevalent about thirty, just when the tendency to acne vulgaris has ceased. Among animal parasitic diseases, pediculi corporis are rare in children, while pediculi capitis are almost universal among the children of the poor. Lupus vulgaris generally begins in childhood; lupus erythematosus rarely begins before the patient is grown up; impetigo contagiosa is more common in childhood, chiefly because children are more exposed to contagion. Cancerous affections are uncommon before middle age.

In connection with age, there are certain events in life which often exert an influence; among these—

Vaccination may be mentioned. Although not a natural process, its practice is so general as to be almost equivalent to it. The influence of vaccination occupies a large place in the public mind as an etiological factor in skin diseases, but only a very small one among medical men. That it is directly or indirectly responsible for some skin troubles cannot be doubted, and they are discussed under their appropriate headings; but the majority of cases ascribed to vaccination are only due to confusing the *post* with the *propter hoc.*

Dentition is another process in early life which is much overestimated as a cause of skin disease, even by the profession, by whom it is too often set up us a "bogey" for the ills of infancy. It has little if any direct influence, but there is doubtless a condition of unstable equilibrium, just before the eruption of a tooth, in which the child is easily upset, and during which any skin disease present, such as eczema or urticaria, is likely to be aggravated.

Puberty.—At puberty the glandular and hairy system take on increased activity, and the line between physiological and pathological

activity is liable to be overstepped. Hence disorders of the sebaceous glands arise, such as seborrhœa, comedones, acne vulgaris, bromidrosis, and hirsuties in girls are met with; at this time, too, many date their first onset of psoriasis and lupus, though both may begin earlier. Some diseases, such as ichthyosis and eczema, dating from early childhood, sometimes undergo amelioration.

The next four relate to women only.

Menstruation only produces eruptions when it lowers nutrition by the excess of discharge; but many eruptions, such as urticaria, acne vulgaris or rosacea, and eczema, are aggravated a few days before the menstrual flow occurs; while a few, such as herpes labialis, an erysipelas-like eruption of the face, erythema circinatum on the back of the hands, fugacious erythema elsewhere, and purpura, have been observed recurring at each period, without anything abnormal in the menses being present. In the absence of the catamenia, hæmatidrosis has been observed, being possibly a vicarious phenomenon.*

Pregnancy.—In connection with this state may be noticed the so-called herpes gestationis (see Hydroa), and the fatal impetigo herpetiformis. Urticaria is not uncommon, and pruritus without any rash is often most troublesome, either general, or at the vulva only. Eczema is less frequent, chloasma is very common, and herpes febrilis is rather common. On the other hand, eczema or psoriasis may clear up during pregnancy, while most of the eruptions which occur during pregnancy clear up soon after parturition.

Lactation often exercises an influence, doubtless by lowering nutrition; thus women liable to psoriasis are very likely to have a fresh outbreak at that time, or an old attack aggravated. This is also true of eczema and other diseases dependent on lowered nutrition.

Climacteric.—At this time many diseases crop up or are aggravated, among which acne rosacea, seborrhœa capitis with consequent baldness, and the ubiquitous eczema, may be specially mentioned.

* See also Danlos, *Thèse de Paris*, 1874; Deligny, *Le Concours Medical*, April 14th, 1888; a good abstract in *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vi. (1888), p. 315; *Brit. Med. Jour.*, March 3rd, 1879, quoting Schramm and W. Wagner; Grellety, translated in Wood's *Medical and Surgical Monographs*.

Constitutional predisposition occurs apart from either heredity or family prevalence, although often associated with those factors, and exercises more frequently an indirect rather than a direct influence. This may be seen in the liability of many persons to eczema on exposure to irritating influences, either external or internal, which would not affect the majority of people. Probably this is analogous to the liability many people show to catarrh of the mucous membranes, which is often to a great extent restricted to different regions in different people, *e.g.*, in and on the nasal mucous membranes, the pharynx, larynx, bronchi, or even stomach or intestines. How much is congenital, and how much acquired, is difficult to say in many cases; but I am a strong believer in the skin itself acquiring a bad habit, so to speak, and reacting to deleterious influences varying in different people, probably through the vaso-motor nerves. Chronic urticaria and allied conditions are the strongest examples of this. It is certainly the case with many patients as regards eczema, especially when they have just got over an attack, and probably the liability to recurrence of erythema multiforme, hydroa, and of psoriasis, and to a less extent lichen planus, may be similarly explained. Certainly the chance of permanent cure, largely depends on the patient being able to avoid the exciting causes of the several diseases, for a considerable period. I am, however, no believer in the so-called herpetism of Bazin, or the dartrous diathesis of Hardy, except in the above very limited sense. Bazin's arthritic diathesis is so far true that gout and rheumatism have an undoubted predisposing influence in some diseases, *e.g.*, eczema, though I believe even this has been pushed too far by his school; and that many cases, *e.g.*, of scleroderma, pityriasis rubra, etc., are associated with rheumatism, because they own a predisposition to a common cause, viz., *chill*, and not because they stand in the relation of direct cause and effect. The greater liability of certain persons to parasitic diseases, which is admitted by most authors, is explicable in another way. The predisposition for vegetable parasitic diseases lies probably in some anatomical peculiarity of the skin or hair follicles, or, as in tinea versicolor, in a greater tendency to perspire; while, with regard to animal parasites, probably some peculiar odour of the individual, exercises an attraction on the insect.

Another point is that the same cause will, in one person, excite one kind of eruption, while in another a totally different form will

be produced, though the same disease will generally be seen in the same individual, under similar influences.

Internal Disease.—In all cases of cutaneous disease, defects in health, whether dependent upon disease in one part or in the whole of the organism, require careful investigation. Any lowering of the general vitality, either from defects in assimilation, defective nutrition—often the result of the first—or defective nerve power, often shown in increased irritability, is an important predisposing factor of cutaneous as well as of other diseases.

The digestion should always claim our first attention. The diseases most directly connected with disturbance of the alimentary canal are urticaria, acne rosacea and eczema, pruritus both general and local, *e.g.*, pruritus ani, but all inflammatory diseases are liable to be aggravated by it. The effects of irritants from food and medicine have already been considered.

It is often difficult to separate functional disorder of the *liver*, from that of the alimentary canal, as they are generally associated together more or less. The disease of the skin most directly associated with that of the liver, is xanthoma, which in its generalised form in an adult is almost invariably associated with chronic jaundice. Severe pruritus is common, and urticaria not infrequent, in jaundice, or even in derangements much less severe than this.

Diseases of the Kidney.—Albuminuria is not a productive cause of skin disease; in my experience, pruritus, urticaria, and as a consequence of scratching, ecthyma, and eczema in a few instances, are most directly associated, chiefly with the granular contracted kidney in the earlier stages, in which the general lowering of vitality also has a part, as well as the albuminuria.

In the more advanced stage of Bright's disease, especially of the granular form, purpura, and, more important, a diffuse erythema, are not rarely observed. Huet of Holland first drew attention to uræmic erythema, recording twenty-seven cases. After him, Bruzelius of Denmark, many French observers, and quite recently Le Cronier Lancaster, have written about it. Morbilliform, scarlatiniform, or patchy at first, it speedily becomes a diffuse red, superficial dermatitis, often universal, and generally followed by desquamation of the whole body surface in large flakes, leaving the skin thickened and red; or eczema may develop, and vesicles or pustules may be produced. As a uræmic phenomenon it is of

grave significance, unless the uræmia can be successfully combated for a time. For further details see Thibierge's paper on the whole subject.*

In **diabetes**, Kaposi,† in a paper on this subject, found xerosis, pruritus, urticaria, acne cachecticorum, roseola and erythema, eczema, especially of the genitalia, balanitis and vulvitis, boils and carbuncles, gangrene, and to these must be added the rare xanthoma diabeticorum. On the other hand, skin diseases may lead to disease of the kidneys; thus chronic universal dermatitis in any form, is liable to lead to albuminuria just before the fatal termination; and Augagneur cites many cases confirming the opinion that suppurative dermatitis may induce nephritis. Temporary glycosuria is sometimes seen in association with eczema, but here they probably only own a common cause.

Diseases of the Respiratory System.—Although these can scarcely be considered causes of skin disease, spasmodic asthma is sufficiently often associated with cutaneous disease to show that there is a relation between them, but probably only that of common origin. Bulkley‡ gives a very complete *résumé* of our knowledge of this subject. Urticaria, eczema, and ichthyosis are the diseases associated with true spasmodic asthma in my experience. Gaskoin also connects psoriasis with it; but this is not in accordance with either Bulkley's or my own experience. Bulkley also, in nine hundred and forty-eight cases of acne, found seven with asthma.

Diseases of the Circulation.—The most important is that sluggish circulation of the blood in the extremities, and perhaps also, the nose and ears, sometimes called the "chilblain circulation," § in which the hands and feet are habitually cold, of a more or less livid redness, and not infrequently moist also. In this condition Richardson has shown that, while the heart is apparently acting

* "Des Relations des Dermatoses avec les Affections des Reins et l'Albuminurie," G. Thibierge, *Annales de Derm. et Syph.*, vol. vi. (1885), pp. 424, 511. He gives extensive references up to date. Since then Chartier's *Thèse de Paris*, 1889, and Lancaster in *Clin. Soc. Trans.*, 1892, may be mentioned.

† *Wiener medicinische Presse*, No. 23, December 1883. Abs. in *Annales de Derm. et Syph.*, vol. v. (1884), p. 28.

‡ *Brit. Med. Jour.*, November 21st, 1885.

§ An extreme instance is depicted in plate 32 of Hutchinson's *Archives of Surgery*, vol. iii., 1891.

strongly, the tension in the radial pulse may be so low, that it is extremely difficult to get a sphygmographic tracing. This is not only a strongly predisposing cause for chilblains, and their occasional sequel, angiokeratoma, but also for lupus erythematosus, one form of which Hutchinson calls "chilblain lupus." He also relates three interesting cases in women with feeble circulation in which there were diffuse local congestions of the face, hands, and feet, with tendency to ulceration and general failure of nutrition.

In December 1891 * Cavafy showed a case at the Dermatological Society of a young woman, æt. twenty-one, with the "chilblain circulation," but who seldom had chilblains, but every winter for several years was subject to an eruption on the fingers of indolent inflammatory lesions, slightly vesicular at first, but a little later were convex, split-pea-sized, red papules with a solid horny plug in the centre, giving them a somewhat warty appearance; they had no vascular points in the centre, and went away entirely in the summer.

In *Peripheral Ischæmia*, the blood is unable to enter the capillaries, as seen in "dead or waxy fingers," and in Raynaud's disease; *obstruction* to the general circulation, such as occurs in emphysema and mitral disease, may manifest itself in the skin in marked telangiectases in the face; while *local obstruction*, such as varicose veins, predisposes to eczema, ulcers of the lower limbs, pigmentation diffuse or in "orange stains," and to elephantiasis, though in this lymphatic obstruction must also concur.

Nervous System.—The etiological connection of the nervous system with cutaneous disease has been much discussed of late years, especially as to what are, and what are not, trophoneuroses. In the present state of our knowledge this is largely academic, except where anatomical changes in the nervous system can be demonstrated. The facts relating to this part of the subject have been summarised by myself,† and these show that:—While the nervous system may determine the occurrence, distribution, extent,

* Published in full in *Brit. Jour. Derm.*, vol. iv. (1892), p. 1.

† "Lesions of the Nervous System etiologically related to Cutaneous Disease," *Brain*, vol. vii. (1884), p. 343, with many references to literature and cases. There is also a good summary of the position of the nervous system in relation to diseases of the skin by Auspitz in Ziemssen's Handbook, p. 124. Schwimmer's *Die Neuropathischen Dermatonosen* is an excellent monograph; Kopp, *Die Trophoneurosen der Haut*, and Leloir's writings may also be consulted.

and intensity, it has no influence on the kind of eruption ; and, further, that less serious consequences ensue from cutting off the nervous supply than from irritant or inflammatory lesions of the parts of the nervous system that affect the skin ; that the kind of eruption produced by the nervous system varies greatly, often without any evident reason, when the nervous effect is apparently the same in place and kind ; that the same eruption may owe its origin to any defective link in the nervous chain from the centre to the periphery; that the same kind of nervous lesion, that at one time appears to excite an eruption or other nutritive defect in the skin, even more frequently, produces no change in the skin whatever.

The lesions other than atrophic, which result when innervation is abolished, are often traceable to external injurious influences which the tissues, when unprotected by the nervous system, are unable to resist ; but we know nothing of the conditions that determine the nature of the eruption or other skin defect, when the nerve lesion is irritative, nor what it is that determines whether there shall be any eruption or none at all. This uncertainty of effect suggests that the nervous influence is an indirect one.

The cerebral effect appears to vary according to whether its control over the vaso-motor centre is increased or decreased, and to the secondary changes it induces in the cord. No localising lesions have yet been found for its influence on the vaso-motor centre. In the spinal cord, the fibres that preside over the nutrition of the skin are bound up with the sensory fibres, and reside, therefore, mainly in the posterior columns. Outside the cord, the path is by the posterior roots, the spinal ganglia, and the sensory fibres, and lesions of any one or more of these may lead to changes in the skin.

The changes observed in Graves' disease must be reckoned as indirectly nerve phenomena. In this, abnormalities of pigmentation have been constantly noticed, such as freckles, local or general bronzing, and leucoderma ; a greasy condition of the skin, cold sweating of the palms or soles, dryness and thinning of the hair, are also frequent.

PATHOLOGY.

The pathology of diseases of the skin follows the same laws as those of other tissues, modified by the special differences from other structures in the normal anatomy of the skin. The pathological processes—anæmia, congestion, inflammation, hypertrophy, atrophy, and neoplastic growths—are all represented in the various diseases of the skin, though anæmia only produces trifling functional derangements, such as pallor and coldness of the surface, and sometimes cold sweating. In addition, owing to its exposed position, parasites, both animal and vegetable, are much more frequent in comparison. The vegetable parasites which are known to produce disease, belong for the most part to the hyphomycetes or fungus family, but there can be little doubt that the schizomycetes, to which bacteria and micrococci belong, play a more important part in the production of many inflammatory diseases and even apparently new growths, especially of the granuloma class, than has, until recently, been suspected. At the same time, micrococci are so ubiquitous, that although their invariable presence in the skin structures may be demonstrated in any particular disease, it is not until pure cultures of them have been obtained, and the disease reproduced by them, that it can be considered proved that they are the true morbific agents, although the suspicion may be very strong on other grounds.

A new parasitic and possibly pathogenic agent has been discovered by Darier in diseased skin. He found bodies called psorosperms, in a special disease called by him psorospermosis follicularis, and in Paget's disease, and other observers think they have found them in molluscum contagiosum and lichen planus. Psorosperms are coccidial forms of the order sporozoa, and are round or oval uni-cellular bodies, with one or more comparatively small nuclei. They are naked at first, but when they have ceased growing acquire a firm shell. They have long been known as inhabiting the epithelial cells of some animals, *e.g.*, in the liver of

rabbits, but they are new to human pathology. That uni-cellular bodies of similar morphology to psorosperms are found in Paget's and in Darier's disease I can bear witness, and indeed is generally admitted, but it is considered by many observers that they are really metamorphosed epithelial cells. Granting that they are veritable parasites, it has yet to be proved that they are the actual causative agents of such utterly diverse diseases as those named, and even then great difficulties remain for explanation.

While the skin, as a whole, is often affected almost from the beginning in the different processes enumerated, the individual skin structures may be found, to a certain extent, to take a predominating part in some diseases; but it is exceptional for one alone to be affected, and the longer the process lasts the more likely is the whole skin to be involved. Thus, the vegetable parasitic diseases invade chiefly the upper layers of the epidermis; the horny layers are greatly hypertrophied in tylosis and other callosities; the stratum mucosum is chiefly involved at first in psoriasis; the papillary layer in eczematous inflammation; the deep part of the corium in scleroderma; in acne vulgaris, the inflammation is chiefly about the sebaceous glands; in papular diseases, round the hair follicles; in miliaria, about the sweat apparatus. Eczema is a good example of an inflammation beginning in the papillary layer, and extending, when of sufficient duration, to the whole skin structure both above and below it.

DIAGNOSIS.

A THOROUGH knowledge of general and special semeiology and pathology is essential to the formation of an accurate diagnosis, the importance of which is so obvious as a necessary preliminary to successful treatment, that no insistence on it would appear necessary, were it not that it is too often vague and indefinite, not only from ignorance of the characters of skin diseases, but from want of system, thoroughness, and trained accuracy of observation.

Such feeble attempts as "erythema," "pityriasis," "lichen," and "lichenoid," with which so many are content, are utterly useless, both for designation and as a guide to treatment; and if those who uttered them, only realised that they were merely saying redness, scaliness, and pimples in a foreign language, they would not take so much trouble to say so little, though no doubt they are convenient cloaks to conceal ignorance from the patient. A certain method is necessary in conducting the investigation. The patient should always be placed in a good light, and it is essential in most cases that it should be daylight; so much is colour, especially if at all yellow, modified by artificial light, that, unless this is unusually white, eruptions of a faint yellow may be overlooked altogether.

Completeness of Examination.—The whole eruption should always be seen, if possible, as a perfectly erroneous idea may be conveyed by merely seeing the part presented by the patient, which is selected, either because it gives the most annoyance, or is the most easy of access, while the most typical features of the rash are perhaps only to be found elsewhere.

In men and children there is no difficulty, as they can always be stripped if the room be properly warmed; while in women, one has often to be satisfied by seeing the eruption by instalments; but where there is any doubt, this at least should be insisted on, as the patient would be the first to blame the doctor if any error arose from imperfect examination; at the same time, the subject

must be led up to with gentleness and tact, after preliminary conversation has put her at her ease.

On first seeing a patient, the sex, apparent age, general conformation, complexion, and aspect are noted. Certain questions are then to be asked. "How long have you had it?" is the first and most important; it often clears the ground of so much, and will, in many cases, be decisive as to the nature of the disease. Thus, in a widespread erythematous eruption, a duration of two or three weeks would at once exclude all the exanthemata for which it might be mistaken; or, in an infiltration, a duration of several years, with very slow extension, would point to lupus rather than syphilis.

The next question is, "What was its course?" A large number of eruptions develop in a characteristic way, and alter considerably from their first appearance. This is especially the case in erythema multiforme, in many cases of eczema, in urticaria papulosa, etc. An eruption is also often modified by various circumstances besides time, such as scratching, poulticing, or previous treatment by another practitioner.

Then the eruption may come out all at once, as in herpes; or in successive crops, as in pemphigus; or by continuous or intermittent spreading, as in pityriasis rubra, and in many cases of eczema; or some lesions will be coming and others fading, as in secondary syphilides and hydroa; or again, there may be constant recurrences just when the disease appears to be cured, as occurs commonly in eczema.

The third question is, "What symptoms, especially as regards itching, fever, etc., attended or preceded the eruption?"

The fourth question, "What is its cause?" has to be answered, as a rule, by the doctor himself, after eliciting from the patient, by question and physical examination, the various external and internal conditions antecedent to the outbreak. A knowledge of general and special etiology is necessary for complete investigation on this point, which would be deferred until the nature of the eruption has been determined. Whether the eruption is only part of a general disorder, or is a disease of the skin itself, will often be decided by the presence and nature of the constitutional symptoms.

The physical characters of the eruption must now be examined.

The eruption, as a whole, should primarily engage attention, first as regards its distribution and extent. Thus, it may be universal,

as in pityriasis rubra, pemphigus foliaceus, or lichen ruber ; general, in many cases of eczema and psoriasis, and many erythematous eruptions ; and more or less limited to one region or part, in a large number of eruptions. It may be symmetrical, as in lupus erythematosus ; unsymmetrical, as in lupus vulgaris ; unilateral, as in herpes zoster and morphœa ; irregular and disseminate, as in scabies and parasitic eruptions generally ; though in tinea versicolor it is generally irregular and aggregate. Then, is the lesion single, as in rodent ulcer ; or multiple, as in most eruptions ? Is it of uniform character, as in scarlatiniform eruptions ; or multiform, as in syphilis, scabies, and eczema ? Investigating still more closely, is there any definite arrangement of the individual lesions, either in groups in the course of a nerve, as in herpes zoster ; or in circles or segments of circles, as in tinea circinata, etc. ; or in lines, as occurs sometimes in lichen planus ; or in patches, round, oval, or irregular, as in psoriasis and many others ?

The lesion itself has now to be examined. Is it a primary lesion, such as a macula, an erythema, a papule, nodule, tumour, or infiltration, vesicle, bulla, pustule, or wheal ; or some special lesion, as a wart, horn, or burrow ; or is it a secondary lesion, and therefore scaly, scabbed, or crusted, excoriated from scratching, or otherwise fissured, ulcerated, scarred, or stained ?

Then, its pathological nature must be determined. Is it due to congestion, inflammation, hæmorrhage, hypertrophy, atrophy, aneoplasm, or a parasite, either animal or vegetable ?

Finally, the general condition of the skin must be noted, whether it is dry or moist, greasy or rough, etc.

The various points of inquiry may be grouped in the following way to impress them on the mind of the student, as they affect the patient, his disease, and the lesion.

SEX
Occupation **PATIENT** General Condition
AGE.
SYMPTOMS
Duration **DISEASE** Course
CAUSATION.
DISTRIBUTION
Nature **LESION** Effects
CHARACTER.

TREATMENT.

Diseases of the skin should be treated upon the same principles as diseases of other organs, and require, therefore, an accurate diagnosis, supplemented by a correct appreciation of their etiology and pathology. Unless the practitioner has a sound knowledge of general medicine, his treatment, except in a few local affections, will generally be as unsatisfactory to the patient, as it ought to be to himself, and he will be driven to resort to the miserable subterfuge of the bungler, that "the rash is better out than in." The popular idea, that it is dangerous to cure eruptions quickly, or, as the laity put it, "to drive the rash in," is as erroneous as the notion that nearly all skin diseases are due to impurities in the blood. Their external position facilitates the application of topical remedies; and as the skin, like other organs, may be idiopathically diseased, local treatment may then do all that is required; but the combination of internal and external treatment is nearly always advantageous, and often necessary, for the comparatively rapid and effectual treatment of the majority of skin affections,—parasitic eruptions, some atrophies and neoplasms, being the most notable exceptions to the value of internal treatment.

INTERNAL TREATMENT.

The character of the internal treatment depends upon the constitution, peculiarities, and general state of health of the patient, in nearly all cases. It is comparatively seldom that the name of the disease of the skin is the determining factor, and it is not until the most careful investigation has failed to detect any departure from health, that resort should be had to one or other of the few drugs which act, or are supposed to act, directly on the skin. Since there is no organ or system which may not be directly or indirectly the main factor in the production of some skin affection, it is bouvios that, from this point of view, an attempt to discuss the

treatment of skin affections, by attacking the organ primarily at fault, would be really a dissertation on general therapeutics; and because this is not attempted in this work, and attention only called to the more direct means at our command, it must not be supposed that it is considered of small importance; indeed, advancing knowledge shows that the more experience and medical acumen the physician possesses, the less is he driven to resort to arsenic and other specifics. General hygiene, tonics, such as iron, cod-liver oil, quinine, the mineral acids, nux vomica, etc., play a large and important part in the treatment of skin eruptions, and when they are indicated on general grounds, should be given regardless of the nature of the skin lesion in most cases; but this is not without exception. Thus sea air aggravates the great majority of cases of eczema, even where such a climate would be otherwise indicated; while in the interval of the attacks it may be highly beneficial. Probably, of all conditions requiring attention, dyspepsia and other disorders of the alimentary canal are the most important. Alkalies, bismuth, vegetable bitters, nux vomica, and the various means for producing regular evacuation of the bowels, are constantly in requisition.

Dietary naturally plays a most important part. This must be suited to the condition of the digestive organs of the patient, but even when these are sound, it must always be borne in mind, that most inflammatory affections have an intimate sympathy with the gastric mucous membrane, and whatever irritates that aggravates the skin trouble. The dietary, therefore, while it should be as nutritious as possible in most cases, should be bland and easily digestible; all highly spiced food, condiments of all kinds, should be avoided; salted foods are also often injurious, because they are less digestible, and tend to give the stomach more trouble, though they need not always be absolutely prohibited; oatmeal, and bran-containing preparations generally, do not suit those who have acute inflammatory affections; again, infants and young children with gastro-intestinal catarrh, either acute or chronic, can seldom digest starchy food, which should therefore be avoided, or given sparingly, and then with maltine.

Alcohol is a subject on which patients are very anxious. Speaking broadly, as a rule, the less the better, except in very moderate doses; alcohol dilates the vessels of the skin, and is therefore contraindicated in inflammatory affections, in which it

generally aggravates the pruritus and increases the hyperæmia. Nevertheless, in persons of weak digestion, a small quantity at the beginning of a meal, especially after fatigue, will often, on the one hand, make just the difference between eating with an appetite, digesting well, and consequent restoration from the fatigue; and on the other, aggravating the exhaustion from the patient having too little vital energy to eat or digest. In elderly people also, it is seldom wise to break up too suddenly the habitual use of alcohol, or indeed almost any habits not positively deleterious.

Alcohol should generally be given, if at all, in the form of a very small quantity of a pure spirit well diluted, or one of the lighter wines, such as claret or hock, which must, however, be perfectly sound or mature. As a rule, the stronger wines, such as port and sherry, and the imperfectly fermented products, such as beer, porter, and the sparkling wines, are more or less injurious.

Of the more direct remedies, a foremost place belongs to

Arsenic.—Unfortunately, with too many it is used indiscriminately, as if it were a panacea for all cutaneous woes; but this is far from being the case, and it is often positively injurious. To get good results from its use, it must be employed intelligently, and with a definite aim as to its intended *modus operandi*. Arsenic acts in two ways, in my belief,—directly on the skin, picking out and acting especially, if not entirely, on the diseased tissue, *i.e.*, in what one may call a local manner; or it may act as a stimulant to the peripheral ends of the nerves, and perhaps to the vaso-motor and trophic centres.

Physiological experiments made by Ringer, Murrell, and Miss Nunn on the frog, show that it acts powerfully upon the epithelial layers. The epidermis peeled off the dermis, beginning at the deeper layers, the degeneration progressing from within outwards; and in the human subject, universal desquamation ensued in a case of poisoning. That the action is mainly a local one, is shown in the treatment of psoriasis, for while under its use old patches often get quite well, new ones may form, even when the patient is fully under the influence of the drug. Its local action is further illustrated by its deposition in the form of a brownish-black pigmentation, limited to the site of the diseased area. Possibly the greater instability of the cells of the diseased area may, to some extent, account for this apparent elective affinity of the arsenic.

Other diseases in which it is of great service are chronic cases of lichen ruber, or lichen planus; in these too, its action is probably chiefly on the epithelial layers.

Its action through the nerves is seen best in pemphigus, hydroa, and chronic urticaria not dependent on digestive derangements, and in frequently recurring erythemata, whether congestive or exudative.

In small doses, it is useful in controlling iodide and bromide eruptions, but its *modus operandi* is not clear.

Arsenic is contraindicated in nearly all acutely inflammatory affections, which are often aggravated by it, and the pruritus is generally much increased in affections dependent on indigestion or other irritable conditions of the alimentary canal, owing to its irritating the gastric mucous membrane, as in most cases of acne rosacea, dyspeptic urticaria, and active eczematous eruptions; indeed, it is scarcely ever necessary or even desirable in eczema, although largely prescribed by many practitioners. Even in psoriasis, and other diseases where it is generally suitable, it should not be commenced until all derangements of health, other than that of the skin, have been rectified as far as possible. Arsenic is seldom of any benefit in deep-seated inflammations, or in non-inflammatory affections, but Köbner has found good results in hypodermic injections for multiple sarcomata.

The mode of administration is of importance. It should always be given after food. Although there are a large number of preparations, the most important are the liquor arsenicalis, or Fowler's solution, and arsenious acid. The other preparations, such as the liquor sodæ arseniatis, liquor arsenici hydrochloricus, solutions and syrups of bromide of arsenic, arseniate of iron, etc., have their advocates, but practically all the good that can be obtained from arsenic can be obtained with one of the first two preparations, though Donovan's solution occasionally finds a place, when it appears desirable to administer arsenic and mercury simultaneously. When Fowler's solution is given, it should be always well diluted and combined with a vegetable bitter, tinctura lupuli being one of the best, and if there is any gastric discomfort a little tinctura opii is a useful addition. Some begin with a small dose, and gradually increase it up to ten, or even twenty minims, if the patient bears it well; others commence boldly at once with ten minims. Although in a good many cases this latter plan succeeds, if it should irritate,

it may render it impossible to give the drug at all, for some time to come. The more cautious method is therefore safer and preferable. Arsenious acid is given in the form of a pill, and the portability of pills often renders the solid form more convenient for the patient. The Asiatic pill (see Formulæ at the end) is a favourite method on the Continent. A formula much used by myself is, arsenious acid gr. 1, ext. lupuli ʒi; divide in pil. 30. One to be taken three times a day after meals.

Some authors, notably Hunt, think that arsenic should be pushed until its toxic effects are produced; this is, in my opinion, always to be avoided if possible. Puffy eyelids and irritation of the conjunctiva should always be a sign to diminish the dose, though not necessarily to suspend it altogether. In some people, very moderate doses will produce severe gastro-intestinal irritation, and necessitate the abandonment of the treatment. It must be borne in mind that fatty degeneration of the liver and kidney with albuminuria, may be induced by the prolonged administration of full doses; and in the skin, general pigmentation and keratosis of the palms and soles, which in a few instances has led to cancer.

Quinine.—Besides its administration as an ordinary tonic, it is also sometimes useful in a more direct way; thus, in the acute stage of pityriasis rubra, in hydroa where arsenic fails, or for other reasons, and in the febrile exacerbations of leprosy, quinine is often most serviceable. It is generally necessary to give large doses; five grains every four hours will sometimes be required; given in an effervescing form, with potash or soda, the alkaloid being dissolved in the acid mixture, it rarely disagrees. In chronic urticaria, in furunculosis, and dermato-neuroses generally, and wherever there is a malarial taint, quinine finds an important place in smaller doses.

Antimony.—The employment of this drug in small doses finds a strong advocate in Mr. Malcolm Morris;* he used it in doses of ♏iij to ♏vij of the wine in acute and subacute general eczema of adults and children (in appropriate doses), in some hyperæmic cases of psoriasis, and in prurigo. To a certain extent I can bear him out, but the cases must be very carefully selected, and where there is any debility or gastric irritation, it should be avoided, as I have seen a limited eczema spread widely under its administration.

* *Brit. Med. Jour.*, September 22nd, 1883, p. 572.

Antipyrin.—This drug has the recommendation of Blaschko, partly endorsed by Köbner, for the relief of symptomatic itching in prurigo, eczema, lichen planus, and senile pruritus, and as actually curative in some cases of pemphigus and of urticaria, especially that of children. It will also often relieve the pain of zoster.

Phosphorus has had advocates in the treatment of psoriasis, eczema, and lupus erythematosus. It may be given in the form of phosphorated oil, in capsules, or in coated pills. A limited experience has not enabled me to say much in its favour.

Turpentine was introduced by myself for inflammatory eruptions, and it is certainly useful in uncomplicated cases of eczema and hyperæmic cases of psoriasis, and other forms of dermatitis in which hyperæmia is the most prominent symptom. In a few cases of cancer it has also appeared to exercise a retarding effect. The method of administration, which must be strictly observed, is detailed under the treatment of psoriasis.

Tar and Carbolic Acid have been given for psoriasis and eczema, the first in capsules, the latter in pills, gr. 2 in each dose. Both Kaposi and Liveing speak in praise of carbolic acid for psoriasis.

Sulphur has a much higher reputation among the laity than among the profession. It is, however, highly to be recommended, in my experience, in hyperidrosis and sweat eruptions generally; and sulphide of calcium, as Ringer showed, is one of the best drugs for furunculosis, and is useful in the freely suppurating forms of acne. Calcium sulphide to be of any use must be freshly made, and enclosed in properly coated pills, or it soon becomes inert.

Ichthyol is a distillation product of a peculiar bitumen from Tyrol, with sulphuric acid. As met with in pharmacy, it is really ammonium sulpho-ichthyolate, and is a treacle-like liquid with a disagreeable odour, miscible with water and fats. The soda salt is also in use. It contains a considerable proportion of sulphur, some of which is eliminated by the skin, of which I received an unwelcome proof in the case of a lady who, after taking ichthyol for some time for an erythematous eruption of the face, used a lactate of lead lotion, and almost immediately the sebaceous secretion of each pore was turned black, giving the appearance of the skin being thickly covered with small comedones. To Unna belongs the credit of introducing it, and he and many of his

followers claim a very high place for it in so large a number of diseases of the skin, including leprosy, as should considerably simplify cutaneous therapeutics. As an internal remedy, I have found it useful in reducing some of the hyperæmia in affections of the face, such as in some of the erythemata, lupus erythematosus, and acne rosacea. It appears to do this by leading to the contraction of dilated vessels, and sometimes it may do so indirectly by its beneficial effect on catarrh of mucous membranes. Thus while giving it to a lady with lupus erythematosus of the face, she was entirely cured of a severe dysmenorrhœa of twenty years duration; conditions due to chronic rheumatism are also benefited by it. The dose is three to five minims in pills or capsules. As a local application it occupies only a small place in my practice; it is too dirty and disagreeably smelling an application, to allow of its being used except at night, without the patient giving up his avocation. It has, however, many friends, who recommend it for numerous and diverse complaints; but without disputing that various affections get well when it is employed, I have not been able to convince myself that it is superior, and it is sometimes distinctly inferior to other less disagreeable remedies. It is least objectionable combined with a zinc gelatine paste, and this is the form in which I generally employ it for dry eczemas; but lotions, soaps, varnishes, and ointments are used. Unna classes it with pyrogallol and chrysarobin as a reducing agent.

Thiol (made by heating oil gas with sulphur) is very like ichthyol in its action and appearance, but without its disagreeable smell; it may be obtained either as a 40 per cent. liquid or as a powder. Whether internally it acts like ichthyol I am not yet sure, but I have found it useful as an external application combined with zinc gelatine paste in sub-acute eczema without much discharge, and have also used it as a 1 or 2 per cent. lotion. Schwimmer claims good results with it, used externally, in erythema multiforme, and that it cured hydroa; but this has not been confirmed.

Tumenol (bitumen and oleum) is a new candidate for favour in this class. Neisser speaks well of it for moist eczema of moderate severity, superficial burns, and ulcers. It is really tumenol sulphonic acid, and is a dark powder with a slightly unpleasant odour. I have not tried it yet.

Resorcin is also recommended by Unna for a similar class of cases. This, with sulphur, ichthyol, sugar, linseed oil and other

reducing agents, when diluted, and applied locally, act as keratoplastic agents, as Unna calls them, *i.e.*, they "make the swollen and defective horny layer harder, thicker, and drier, so that it may again become more fit to take up fat." Resorcin is a good antiseptic and parasiticide, and being neither objectionable in colour or smell, is useful in many affections, such as lupus, ringworm, favus, seborrhœa, epidermic thickenings, etc.

Iodine and Iodides.—Besides their use in syphilis, especially in the tertiary stage, iodine and its preparations are of great utility in strumous affections. Liveing is a strong advocate for the use of the tincture in three to five minim doses for lupus vulgaris, and in small doses the potash salt is often very useful in gouty eczema; much smaller doses are required for non-syphilitic affections than for the syphilo-dermata, except in the case of psoriasis, for which gigantic doses have been recommended by Haslund.

Diuretics.—Just as the skin can often be made to help the kidneys in their difficulties, so can the kidneys be called in to the aid of the skin. Many chronic inflammations, and some acute ones, may be relieved by diuretics, the acetate and other preparations of potash, being the chief aids in cases with a gouty or rheumatic taint, or wherever there is defective elimination, the spirit of juniper and the infusion of broom may often be usefully combined with these salts. They should all be given freely diluted, and the neutral salts given after meals.

Aperients.—In all cases the bowels should be kept free, and in acute inflammatory diseases, especially eczema, it is often desirable to begin with saline aperients; the sulphates of sodium and magnesium in equal parts, form an almost tasteless combination. Rochelle salt, in the form of seidlitz powder, is another useful form, and the stock combination of carbonate and sulphate of magnesia with a carminative is constantly in requisition. The sulphate of magnesia in combination with sulphate of iron (Startin's mixture) for acne vulgaris is extremely valuable. In pruritus ani, the importance of easy action of the bowels is obvious, but, in all cases, regularity without effort rather than intermittent violent purgation should be aimed at.

Mineral Waters.—These have held a high place in skin affections from time immemorial. The various springs useful in skin affections are discussed at the end of this work; only those taken away from their source are alluded to here; they are chiefly the

alkaline and aperient waters. Vichy and Carlsbad, the latter laxative also, are the chief alkaline waters; while the aperient, many of which are also more or less alkaline, are numerous; Friedrichshall, Pullna, Æsculap, Hunyadi Janos, Radocsky, "Victoria" Ofner and Rubinat, are the most useful, their relative strength being in the order in which they are enumerated. A heaped teaspoonful of Carlsbad Sprudel salt, dissolved in two-thirds of a tumblerful of warm water, and taken before breakfast, is most useful; it is alkaline, and acts generally once or twice freely, not more. Sulphur waters, such as Harrogate and Strathpeffer, are of value where there is a rheumatic taint.

Counter irritation over the vaso-motor centres has been used by myself with great success in obstinately recurring eczema, and similar inflammatory attacks. A mustard leaf, or blister, is applied over the vaso-motor centre, controlling the region affected, viz., behind the ears for the face, along the cervical spine (cervical enlargement) for the arms, over the three lower dorsal and first lumbar spines (lumbar enlargement), for the genital or genito-anal region and lower limbs, or just behind the trochanter, for one limb only. It always relieves the pruritus for some time, and often leads to the subsidence of the inflammation.*

LOCAL TREATMENT.

No part of the body is so exposed to parasitic invasion as the skin even in its normal condition, and any disturbance of the surface, especially of an inflammatory character, opens wide the door for their entrance. It is therefore scarcely to be wondered at, that as the knowledge of the noxious influence of many of these organisms increased, so also did efforts to destroy them, or prevent their entrance. The consequence has been the employment of microbe destroyers on the one hand, and of various methods of coating the skin to exclude the air, on the other. In a word, the keynote of modern dermo-therapeutics is ANTISEPTICISM.

Fortunately, the skin offers greater facilities for the application of local remedies, than any other organ. They are employed either to cleanse, give temporary relief, or as curative agents.

Baths stand first as cleansing agents, to remove scales, crusts,

* *Brit. Med. Jour.*, July 9th, 1887, p. 66.

offensive and other secretions; when plain water is used, boiled or rain water is best; for scales or crusts, alkaline baths are most useful, as in psoriasis and ichthyosis. In eczema, and very active hyperæmic states, baths are generally injurious, so that they must not be used indiscriminately, and in eczema, therefore, soaking the part in olive oil is the best plan to remove any scales or crusts. Medicated baths are used, both as palliative and curative agents. As palliatives may be mentioned baths of alkalies and mucilaginous substances, such as starch, bran, size, marshmallow, etc., for urticaria and parasitic itching, and in many inflammatory conditions. As curatives may be instanced, baths of sulphur in scabies, of tar in some obstinate forms of eczema and psoriasis, and the continuous bath in some severe forms of pemphigus and burns.

Soaps are also used medicinally and as cleansing agents; soda or hard soaps are used for ordinary cleansing, but soft or green potash soap is most efficacious in removing scales, and is much used in ringworm, psoriasis, and seborrhœa.

As curative agents may be mentioned, Hebra's soft-soap treatment for chronic eczematous infiltration, and, combined with spirit and oil of cade, for psoriasis of the scalp and knee. Without the oil of cade, it is also useful for comedones. Many drugs have been added to a soda-soap foundation, *e.g.*, carbolic acid, thymol, naphthol, sulphur, etc., but, as a rule, medicated soaps are of small curative value, as they are so largely diluted and usually applied so transitorily, while in few diseases can soaps be applied continuously, as they are then slightly caustic.

"*Mouilla*" is a very excellent liquid potash soap, with a large percentage of glycerine. It is useful in comedones and for cleansing purposes, but has not enough fat for use on the face. For toilet purposes, it is important that there should be no excess of alkali, and the best transparent and other soaps are neutral. Unna goes further, and advocates an over-fatty soap, *i.e.*, one containing 4 per cent. more fat than is necessary for the neutralisation of the alkali; and Kirsten's "Mollin" is a soft soap, containing 17 per cent. excess of fat (suet and cocoanut oil). These over-fatted soaps will sometimes become rancid.

Poultices are favourite applications, both as soothing remedies and in acute inflammations, as in boils, and to remove scales and crusts; but they are apt to produce more harm than good, except

in very careful hands, and as safer means will do as much I now never employ them.

Bandages are highly useful in supporting relaxed tissues and in keeping on other dressings, as in all inflammatory eruptions below the knee, especially where there are varicose veins. Martin's indiarubber bandage is very useful in ulcers of the leg and in elephantiasis arabum.

Ointments are probably the most universally applicable remedies for skin diseases. They consist of various fats, in which medicaments are intimately mixed or dissolved. The fats most commonly employed are—lard, preferably benzoated, which retards decomposition; petroleum fats, such as vaseline, white vaseline, etc.; and lastly, lanolin, introduced by Liebreich, a cholesterin fat obtained from sheep's wool. Compound fats are also employed occasionally, such as spermaceti, or white wax, or paraffin wax, and olive or almond oil in various proportions, according to the consistence required. Of all these, benzoated lard is the most universally employed. The vaselines at one time threatened to supersede it; but it was found, that the claim that they did not turn rancid was not sustainable, and that then they were very irritating, and even fresh vaseline irritates a few skins, possibly from some want of care in the manufacture; finally, Shoemaker and others assert, that its penetrating power through the tissues is very inferior to that of lard or lanolin. Lanolin has great penetrating power, and is especially useful where this quality is required, as in ringworm, for mercurial inunction, psoriasis, etc. It has also the advantage of being readily miscible with watery solutions; it is, however, very sticky when used by itself, and requires to be mixed with a third part almond oil or the heavy paraffin oil, called parolein, to make a good ointment base. Ointments are of five classes—soothing, astringent, antiseptic, stimulating, and antiseptic or parasiticide. The last are only part of a large class of remedies.

Soothing ointments are such as protect the inflamed part from the injurious influences of air and moisture, and comprise all simple ointments, such as spermaceti, cucumber, cold cream, unguentum simplicis P.B., etc.

Astringent ointments are generally soothing as well as astringent, and comprise most of the preparations of lead, zinc, bismuth, boracic acid, the acetate and oleate of lead (diachylon). The

oxide and oleate of zinc and lead, and boracic acid are those chiefly employed, and are suitable for most forms of dermatitis, especially eczema. To get the best effects from them, they must be continuously applied by being spread thickly on strips of linen or lint, and bound on. Unna's salve-muslin preparations are convenient; a loosely woven muslin is soaked in the ointment, and can be quickly and closely applied.

Antiseptic ointments are chiefly used in pustular forms of dermatitis, such as pustular eczema and impetigo contagiosa, and comprise ointments of iodoform, iodol, boracic acid, ammonio-chloride of mercury, salicylic acid, carbolic acid, etc. Where there is active inflammation, weak ointments, continuously applied, answer best.

Stimulating and antiseptic ointments are numerous, and often synonymous, and only a few can be mentioned. They are of great utility in numerous chronic inflammations, such as psoriasis, chronic eczema, lichen planus, prurigo, etc. They comprise preparations of tar and its derivatives, oil of cade, oil of birch, carbolic acid, etc.; thymol, naphthol, Goa powder and its active principle chrysarobin, pyrogallic acid, salicylic acid, and various preparations of mercury and sulphur. The quantity varies according to the amount of stimulation required, and each has its peculiarities; and much experience is required in the selection of the right drug and the strength of the preparation; but where there is any doubt, the weaker preparation should always be chosen, and at first used over a small area, and, if suitable, the strength increased as required. As a rule, they are applied intermittently, being rubbed in two or three times a day.

Oils and Liniments.—Simple oils, such as olive, almond, linseed, cod-liver, or castor oil, are bland applications, and are used either to soften and remove scales or crusts, or to soothe and protect a highly inflamed skin; thus, pityriasis rubra, acute psoriasis, and the like, are much benefited by being wrapped up in oiled bandages. The crusts of pustular eczema on the scalp, for instance, are best removed by strips of flannel dipped in olive oil and applied closely for some hours. Olive oil with lime-water forms the well-known Carron oil, useful for burns and superficial inflammations; the addition of calamine and oxide of zinc to this constitutes calamine liniment, which is a highly valuable preparation, best applied by dipping bandages

into it and wrapping the affected part up; it is much more convenient and economical than ointments when the diseased area is extensive, as in pityriasis rubra. Petroleum oil, as used for lamps, is a cheap and efficient application for extensive pediculi capitis. Chaulmoogra oil is used for strumous affections and leprosy, both internally and externally. There are also many essential and stimulating oils, which are used in combination with less active vehicles, such as oil of cade, oil of birch, oil of turpentine, Gurjun oil (used in leprosy), and many others.

Lotions are applicable to a great number of forms of disease, and are, as a rule, more convenient than greasy applications, as most of them can be applied intermittently. Like ointments, they are soothing, astringent, stimulating, anti-pruritic, etc.

Soothing lotions are a large and important class—lead acetate and lactate, oxide of zinc, calamine, bismuth in suspension, black wash, boracic acid, bicarbonate of soda and borax, are the most important members of this class. They are generally combined with a small proportion of glycerine, to prevent too much desiccation. Glycerole of lead, which is used diluted, is a most important preparation. Boroglyceride is another useful glycerine preparation, and glycerole of carbolic acid is a good parasiticide. They are chiefly used in active inflammations.

Stimulating and antiseptic lotions contain corrosive sublimate, carbolic acid, tar (especially as liquor carbonis detergens), thymol, sulphur, sulphide of calcium, acids, alkalies, cantharides, nitrate of silver, and many others, often with more or less alcohol to increase the solubility or to promote evaporation and produce cooling. They are used in chronic inflammations, such as psoriasis, seborrhœa, eczema, acne vulgaris, and rosacea.

Astringent lotions have a less frequent employment except in hæmorrhage and hyperidrosis, and contain substances like tannic acid, alum, acetic acid, etc.

Antipruritic lotions are extremely valuable for urticaria, and pruritus without eruption. The best are liquor carbonis detergens, sanitas, terebene, salicylic acid, carbolic acid, benzoic acid, hydrocyanic acid, and alkaline lotions.

Dusting powders are used to dry up and astringe, as in hyperidrosis, intertrigo, and eczema. Rice, starch, arrowroot, kaolin, lycopodium, asbestos, brown or white fuller's earth, iris root, talc, and silicic acid are the usual vehicles, and with them are

combined oxide and oleate of zinc, boracic acid, calomel, oil of cade, or creasote. They must be intimately mixed, and the powder free from grittiness and impalpable. Unna's plan is a good one, viz., filling long, narrow bags with one of these powders, quilting the bags across to prevent shifting, and fastening them to such parts as the groins, round the scrotum, under the breasts of fat women, in eczema, intertrigo, etc. They are not suitable where the discharge is inflammatory and very copious, as they form crusts with the exudation, which often produce great discomfort.

Parasiticides are animal or vegetable destroyers. Sulphur and its sodium, potassium and calcium compounds, destroy both animal and vegetable life; naphthol, styrax, and Peruvian balsam are useful in scabies; stavesacre, white and red precipitate, and corrosive sublimate are used largely for pediculi; chrysarobin is one of the most powerful vegetable parasiticides. But their number is legion, and the reader is referred to the section on Parasitic Diseases for more particulars.

Bactericides.—Iodoform stands first in importance for skin diseases, on account of its destructive influence on pus cocci and tubercle bacilli, without producing local irritation, as perchloride of mercury does. Iodoform, if absorbed in large quantities, is poisonous, unfortunately too, its penetrating and nauseating odour limits its use, and persistent efforts to find odourless substitutes have only been partially successful as yet. Iodol and aristol are much less powerful; of the two, iodol is rather stronger than aristol in my experience, and is a fair substitute for iodoform where that cannot be used. The sozo-iodol salts of soda, potash, zinc, and mercury are also good antiseptics; but the soda and potash salts are too painful to be dusted on a wound. They are, however, soluble in water, the sodium salt especially; and as they are very clean, inodorous applications, may be used in antiseptic lotions for hair washes, etc. Sozo-iodolate of mercury is strongly recommended by Schwimmer for the treatment of syphilis by subcutaneous injections. Dermatol has not fulfilled its promise; it is much weaker than iodoform, and is of no use for chancres. I have used europhen with more satisfaction; it is an iodine compound, with an odour compared to saffron, but not very strong. It can be used in the same cases as iodoform, except perhaps where tubercle bacilli are concerned, and acts well, though it is probably not quite so powerful a bactericide as iodoform.

Pyoctanin, blue and yellow, are aniline dyes, and this circumstance rules them out of court for most skin diseases. They have been successfully employed for epithelioma and similar malignant growths.

Caustics are chiefly employed for lupus and new growths generally, and are of all grades, from discutients, such as salicylic acid, iodine, mustard, and cantharides, up to those producing gangrene, such as caustic potash, arsenic, chloride of zinc, caustic lime, nitrate of silver, ethylate of sodium, chromic and pyrogallic acids; the last three are not so strong as the others. Caustic potash is very powerful and the pain does not last long, but it is liable to diffuse into the tissues farther than was intended, it must therefore be very cautiously used. Arsenic is very valuable, as it picks out the diseased tissue, but should only be used over a small surface at a time, as fatal absorption has occurred when employed over a large area. Chromic and salicylic acids are used for warts and corns; salicylic acid is an important keratolytic, in the form of plaster or paste, to remove thickened epidermis. Chloride of zinc does good service, but acts slowly, and is painful for a long time, but it is more manageable than caustic potash. The solid stick of nitrate of silver is valuable for boring out lupus nodules. Acid nitrate of mercury and nitric acid are good superficial caustics, and are used for chancres, post-mortem warts, and lupus vulgaris and erythematosus. Other agents are in occasional use.

Special Media.—Pick of Prague has employed gelatine, with a little glycerine, as a medium for applying chrysarobin, pyrogallic acid, etc., without staining the clothes. Salicylic acid and other medicaments are also used as follows:—After reducing active inflammation by binding on unguentum saponis with 5 per cent. of salicylic acid, fifty parts of purest gelatine are dissolved in one hundred of distilled water; the salicylic acid or other drug is mixed in the melted compound and painted on with a stiff brush; a little glycerine is then smeared over with the finger to prevent the gelatine cracking. The salicylic acid is used for eczema, the chrysarobin for psoriasis.

Another, and I think better, plan for psoriasis, is Auspitz' traumaticin application, which consists of one part of pure gutta-percha dissolved in ten parts of chloroform; then 10 per cent. of chrysarobin or pyrogallic acid is mixed in, and the emulsion painted

on with a stiff brush. Or Besnier's modification may be used,—10 per cent. chrysarobin in chloroform is painted on, and then varnished over with traumaticin.

Unna has improved on Pick's formula by using less gelatine and incorporating glycerine, and so formed an excellent hard base, to which may be added such medicaments as are required. Such *hard pastes* are suitable for dry eczema and other inflammations where there is little or no discharge. The paste is melted by placing the vessel containing it in hot water, and is then painted on with a stiff brush, and dabbed with cotton wool to prevent the surface from being sticky. He has also devised lead, starch and gum pastes, but they have only a limited application, as they must be freshly made, and are not very manageable. One of the most useful *soft pastes*, with something of the character of an ointment, is Lassar's starch, zinc and vaseline paste, with a little salicylic acid, for eczema where it is dry or when the discharge is only moderate. It is spread thickly on the diseased surface, and covered with a many-tailed bandage of butter cloth. The formulæ for these and other pastes are given in the Appendix.

Unna's plaster muslins are also much used. The plaster muslins consist of a very thin sheet of gutta-percha backed with undressed muslin, and coated on the right side with an adhesive substance, with oleate of alumina, containing one or more medicaments. The drug, being in a magma on the surface, acts more powerfully than when incorporated in the plaster substance, in the usual way.

The salicylic acid plasters are the most valuable with or without creasote, the latter being used for lupus. The others Unna uses most, are those of mercury and carbolic acid for boils and other phlegmonous inflammations, resorcin for severe acne vulgaris and rosacea, and the zinc oxide and mercury plaster as a substitute for inunction in syphilis. They are prepared of different strengths, and are obtainable in this country.

Collodion applications are extremely valuable, especially the non-flexile, which acts by mechanically compressing the part as well as excluding the air. Simple collodion is useful in chilblains and in lupus erythematosus; for the latter also, salicylic acid or resorcin is sometimes usefully added, and a 2 per cent. salicylic acid collodion I regard as most valuable for ringworm. Iodine and collodion is also good.

Pick has lately suggested a "*linimentum exsiccans*" of tragacanth for the same class of cases as the gelatine pastes. Its formula is tragacanth five parts, glycerine two parts, distilled water one hundred parts; it is painted on, and forms a sort of varnish. Elliot's varnish of bassorin, a derivative of tragacanth, is a similar application (Pastes, F. 7). Unna and Beiersdorf have imitated it with salep, as well as tragacanth bassorin, borax casein, and glycerine casein, all soluble in water; and others, soluble in spirit, such as castor oil and shellac, Canada balsam and collodion, etc., have been tried with success in certain cases. There is scope for any amount of ingenuity in these pastes, but the principal aim is the same in all—the exclusion of the air in the most efficient and convenient manner from the inflamed part.

Oleates.—Metallic oxides and alkaloids dissolved in oleic acid were first used by J. Marshall, the oleates of mercury and morphia being those he first employed. Subsequently he invented the zinc oleate, which I was the first to use for skin diseases. Since then Shoemaker has been a prominent advocate for various oleates which he had made by double decomposition—a distinct improvement. The most valuable are—oleate of zinc, oleate of lead (Hebra's diachylon ointment), oleate of bismuth, all efficacious in eczematous inflammations; and oleate of mercury and oleate of copper as vegetable parasiticides.

Mechanical means which are especially used in dermatology are *the steel spoon* and the *curette*, for scraping lupus vulgaris; *the multiple scarifier* and *puncturer* of Squire, Veiel, Pick, etc., for lupus erythematosus; *various implements with a central hole*, for facilitating the removal of comedones, and the *epilation forceps*.

Electrolysis has become an important agent of late years in the permanent removal of superfluous hairs, in the obliteration of small dilated vessels, and in the destruction of nævi and some new growths. The galvanic current has been occasionally used to relieve the pain of herpes zoster, and for pruritus, but it and the Faradic current have found but small employment hitherto in dermatology, except in Raynaud's disease, in which galvanism has been of some service.

The Galvano-Cautery is very useful for lupus, as so strongly advocated by Besnier, and for removing many small growths.

Paquelin's Cautery is also used for similar purposes, and a small one devised by Unna is sometimes used for red noses, etc.

Massage (in the vernacular, "rubbing") is of service in assisting in the absorption of inflammatory induration, in scleroderma, in sluggish circulation of the skin (*e.g.*, "chilblain circulation"), and in acne indurata of the back. It has been quacked as usual, having been put forward as a preventive of wrinkles of the face.

CLASSIFICATION.

The object of classification is twofold—to show the pathological relationship of diseases to each other, as a guide to community of origin; and to serve as a *memoria technica*, which enables the multiform aspects of disease to be remembered and methodically studied as an aid to diagnosis.

The first classification of any real value was that of Willan, though Plenck had foreshadowed it some years before. It was founded almost entirely on the clinical aspect of diseases, grouped according to their elementary lesions. Notwithstanding many other attempts, it practically held possession until that of Hebra was published, the main feature of which was that it applied the general principles of pathology to skin diseases. It is largely a classification of pathological results (on an anatomical basis), and is a great advance on all previous attempts. Auspitz, followed by Bronson, has endeavoured to go further, and show the true pathogenesis of skin diseases; but though indicative of the line in which advance can be made, our knowledge is too incomplete for it to be of great practical utility at present; and as the main object of this work is to present dermatology as we know it now, and not as we hope it will be, Hebra's classification, somewhat modified to suit advances in knowledge and clinical convenience, is the basis of the one employed, for, although admittedly imperfect, and not quite logically consistent in all its details, it is the one which is the most practical, and, on the whole, as pathologically sound as our present knowledge permits. In grouping together the diseases of the appendages of the skin, I have been influenced solely by the clinical convenience of studying, as a whole, all the diseases of the hair, nails, etc., instead of picking them out from the different pathological groups of inflammation, hypertrophy, etc.

The varieties of dermatitis from drugs, poisoned wounds, etc.,

and parasitic diseases, have an etiological rather than a pathological relationship.

There are, moreover, a few anomalous diseases, like ainhum, molluscum contagiosum, etc., which do not fit well in any of the classes; their present arrangement is therefore provisional. In short, feeling the hopelessness, at present, of a really scientific and consistent classification, my guiding principle has been what I conceive to be the most convenient, from a clinical point of view.

Class I.: Hyperæmiæ—Congestions.

	Most prominent primary lesion.	
Erythema simplex	Erythema.	
,, ab igne	,,	and pigmentation.
,, pernio	,,	
,, intertrigo	,,	
,, fugax	,,	
,, roseola	,,	
,, scarlatiniforme	,,	

Class II.: Exudationes—Inflammations.

	Most prominent primary lesion.	
Erythema exudativum multiforme	Erythema.	
,, ,, iris	,,	and vesicles.
,, ,, nodosum	,,	
,, ,, induratum	,,	and brawny swelling.
Peliosis rheumatica	,,	and hæmorrhages.
Pellagra	,,	
Acrodynia	,,	
Urticaria	Wheals.	
Prurigo	Lenticular papules.	
Eczema	Multiform lesions.	
Dermatitis repens	Epidermic denudation and fluid exudation.	
Impetigo contagiosa	Vesicles and pustules.	
Furunculus	Phlegmonous.	
Carbunculus	,,	
Pompholyx	Bullæ and vesicles.	
Herpes zoster	Grouped vesicles.	
,, facialis	,,	,,
,, progenitalis	,,	,,
Pemphigus	Bullæ.	
Hydroa	Grouped bullæ.	
Impetigo herpetiformis	,, pustules.	
Psoriasis	Scaly crusts on red base.	
Pityriasis rubra	Diffuse redness, with large scales.	
,, rosea	Patches, with fine scales.	
,, rubra pilaris	Papules ,, ,, ,,	

CLASS II.: EXUDATIONES—INFLAMMATIONS (*continued*).

	Most prominent primary lesion.
Lichen ruber	Papules, acuminate.
,, planus	,, flat.
,, scrofulosus	,, minute convex.
,, pilaris	,, follicular.
Conglomerative pustular folliculitis	Pustules en plaques, aggregated.
Dermatitis	Multiform lesions.

CLASS III.: HÆMORRHAGIÆ—HÆMORRHAGES.

Purpura	Blood extravasation.

CLASS IV.: HYPERTROPHIÆ—HYPERTROPHIES.

	Parts affected.
Ichthyosis	Epidermis and papillæ.
Keratosis pilaris	Hair follicles.
Verruca	Epidermis and papillæ.
Clavus	,, ,,
Cornu cutaneum	,, ,,
Callositas	Epidermis.
Tylosis	,,
Scleroderma	Corium.
Sclerema neonatorum	,,
Œdema neonatorum	,,
Elephantiasis	The whole skin.
Lentigo	Pigment.
Chloasma	,,
Acanthosis nigricans	,, with papillary growths.
Nævus pigmentosus	,, neoplasm.

CLASS V.: ATROPHIÆ—ATROPHIES.

	Parts affected.
Albinism	Pigment deficiency.
Leucoderma	,, disturbance.
Atrophoderma (or Xeroderma) pigmentosum	Corium.
Atrophoderma albidum	,,
,, senile	,,
,, striatum et maculatum	,,
,, neuriticum	,,
Perforating ulcer	,,
Morvan's disease	Sensory nerves. Analgesic whitlows.
Ainhum	Corium?

CLASS VI.: NEOPLASMATA—NEW GROWTHS.

	General character.
Darier's disease	Crusted papules.
Molluscum contagiosum	Degenerative.
Xanthoma	Degenerative.
Colloid	Degenerative.

CLASS VI.: NEOPLASMATA—NEW GROWTHS (*continued*).

	General character.
Lupus vulgaris	Infiltrating.
,, erythematosus	
Scrofuloderma	
Tuberculosis	
Syphilis	
Lepra	
Rhinoscleroma	
Keloid	Benign.
Fibroma	
Myoma	
Neuroma	
Nævus vascularis	
Telangiectasis	
Angioma serpiginosum	
Angiokeratoma	
Lymphangiectodes	
Lymphangioma tuberosum multiplex (Idradenoma)	
Carcinoma	Malignant.
Paget's disease	
Epithelioma	
Rodent ulcer	
Sarcoma	
Mycosis fungoides	
Yaws	
Verruga Peruana	
Furunculus orientalis	
Phagedæna tropica	

CLASS VII.: NEUROSES—SENSORY DISEASES.

Hyperæsthesia
Dermatalgia
Pruritus
Anæsthesia

CLASS VIII.: MORBI APPENDICIUM—DISEASES OF THE APPENDAGES.

	Most prominent primary lesions.
A. SWEAT GLANDS:—	
Hyperidrosis	Excessive secretion.
Bromidrosis	Altered quality.
Chromidrosis	
Phosphorescent sweat	
Uridrosis	
Anidrosis	Secretion absent.
Miliaria crystallina (sudamina)	Retained secretion.
,, vesiculosa	Inflammation.
,, papulosa	,,

CLASS VIII.: MORBI APPENDICIUM—DISEASES OF THE APPENDAGES (*continued*).

B. SEBACEOUS GLANDS:—	Most prominent primary lesion.
Seborrhœa	Excessive secretion.
Seborrhœic dermatitis	Multiform.
Sebaceous cysts	Retention.
Milium	,,
Comedones	,,
Acne vulgaris	Inflammation.
,, rosacea	,,
,, varioliformis	,,
Adenoma sebaceum	Papular neoplasms.
C. HAIR FOLLICLES:—	
Hirsuties	Excessive growth.
Atrophy	Defective ,,
Alopecia	Baldness.
,, areata	,, in patches.
Concretiones	Growths on the hair-shaft.
Sycosis	Inflammation.
Dermatitis papillaris capillitii	,, and keloid.
D. NAILS:—	
Pterygium	Overlapping of nail fold.
Onychia	Inflammation in matrix.
Paronychia	,, round matrix.
Atrophy	Defective growth.
Onychogryphosis	Overgrowth.
Onycho-mycosis	Fungus growth in the nail.

CLASS IX.: PARASITI—PARASITES.

A. VEGETABLE:—	Parts affected.
Favus	Hair and skin.
Tinea trichophytina tonsurans	Hair.
Tinea trichophytina decalvans	,,
Tinea trichophytina circinata	Skin.
Tinea trichophytina barbæ	Hair.
,, imbricata	Skin.
,, versicolor	,,
Erythrasma	,,
Pinta	,,
Fungus foot of India	Skin and deeper tissues.
B. ANIMAL:—	
Scabies	Acarus.
Demodex folliculorum	,,
Pediculosis capitis	Insect.
Pediculosis corporis	Insect.
Pediculosis pubis	Insect.
Dracunculus medinensis	Filaria, or thread-worms.
Filaria sanguinis hominis	Filaria, or thread-worms.
Cysticercus cellulosæ cutis	Tænia, or tape-worm embryo.

Part II.—Special.

CLASS I.

HYPERÆMIÆ—CONGESTIONS.

This class includes all cases of mere congestion of the skin; but while there are some, like erythema fugax, which are really only congestions, it includes others in which congestion is only a prominent early feature, as there are but few, in which the process is not accompanied by inflammatory effusion, unless the primary congestion is speedily relieved. It is therefore to some extent a conventional class, in which congestion is the prominent, but not necessarily the exclusive manifestation.

The clinical symptoms are—redness momentarily removable by pressure, generally increased heat of skin, which itches or burns slightly as a rule, and the seat of the lesion is manifestly superficial, *i.e.*, in the papillary layer.

The shape is indefinite and ill-defined at the border, the size from a mere point to a large patch, the evolution rapid, and the duration a matter of a few hours or days, unless the congestion limit has been passed and the disease has gone on to inflammation.

Hyperæmias are active or passive; the active are synonymous with erythema, the passive with lividity of the skin.

Passive congestion is idiopathic and local, due either to mechanical causes obstructing the venous flow, such as tight clothing or bandages, or to exposure to cold. Symptomatic disturbances in the circulation or respiration are more general in their action, and affect the peripheral circulation, especially the extremities, as in cyanosis from congenital heart disease or emphysema.

I know of only one acquired affection of purely passive congestion

that would at all attract the special notice of the dermatologist. One instance was that of a child under Dr. Barlow at the Children's Hospital at Great Ormond Street, in whom, when the legs were exposed, purplish rings about an inch in diameter, with clear centres, appeared slowly on the thighs. Another instance of it was a man with locomotor ataxy, shown by Dr. Lees at the Dermatological Society, on whose legs a similar phenomenon developed when the legs were uncovered; the rings disappeared when the limbs got warm again. In two cases, both girls, recorded by Cavafy,* there was a similar but persistent condition, though varying much in degree, cold being an aggravating feature, while it was very faint in warm weather. It disappeared on pressure, leaving slight pigmentation. Both upper and lower extremities were affected, and one girl had had rheumatic fever and was subject to "dead fingers."

ERYTHEMA.

Deriv.—*Ἐρύθημα*, a blush.

Synonyms.—Rose rash; *Fr.*, Érythème; *Ger.*, Hautröthe.

"Erythema" is the term used to express the clinical aspect of congestion, and may be defined as "redness of the skin which disappears for a moment upon pressure." Much confusion has arisen from its being employed indiscriminately for the symptom of redness, irrespective of the cause, and also for two groups of diseases,—one the result of hyperæmia only, of which erythema simplex is the type; the other due to actual inflammation, represented by erythema exudativum. Confusion can only be avoided by always using a specific title, when erythema is intended to represent a special disease. At the same time, it must always be borne in mind that the line between hyperæmia and inflammation is a narrow one, and many of the affections which are here classed under hyperæmiæ are only so in the majority of cases, while in others the process goes on to exudation. The distinction is therefore, often one of clinical convenience rather than of pathological accuracy.

* "Symmetrical Congestive Mottling of the Skin," *Clin. Soc. Trans.*, vol. xvi. (1883), p. 43, with coloured plates and references to Kaposi and Auspitz.

ERYTHEMA HYPERÆMICUM.

In this class swelling is absent or insignificant in the congested areas, and the tint of redness varies from the brightest red to a rosy or purple hue, according to the predominance of arterial or venous hyperæmia.

There are two groups :—1. Those of local distribution, due to external irritation ; 2. Those of more or less general distribution, due to internal causes.

Group I. includes E. Simplex, E. ab igne, E. Pernio, E. Intertrigo, E. Læve, E. Paratrimma, and E. Fugax.

Erythema Simplex is the congestive redness due to external irritation, of moderate intensity.

The size and tint of the red patches vary, according to the irritant, the individual susceptibility, and the activity of the circulation. The symptoms are generally a sense of heat, perhaps tenderness and itching, of varying intensity.

Etiology.—The causes are very numerous, and may be arranged under the heads of—

1. Friction, or pressure of clothing.
2. Heat, whether of the sun (E. Solare), or artificial (E. ab igne).
3. Cold, of which pernio or " chilblain " is a familiar example.
4. Stings, *e.g.*, of the jelly-fish.
5. Various irritants,—vegetable, such as arnica, rhus, mustard, chrysarobin, etc. ; chemical, *e.g.*, acids, alkalies, sulphur, arsenic, mercurial inunction, etc.

Erythema ab igne.—This affection is important chiefly as a matter of diagnosis. It occurs in cooks, stokers, and women who toast their legs at the fire. In the early stage it forms rings of erythema and gyrate patterns on the front of the legs. The rings are from an inch to an inch and a half across, not elevated above the surface ; the border, one-eighth to a quarter of an inch wide, of a deep red colour, gradually becomes browner in tint, and when the legs have not been exposed for some time to the fire, the redness fades and leaves only a deep brown, ringed pigmentation, which even the late E. Wilson * erroneously ascribed

* *Portraits of Skin Diseases*—Melanopathia Syphilitica, plate 34. The early stage with vesication in a marked degree will be illustrated in my atlas.

to syphilis. In exceptional cases in the early stage, there may be vesication on the erythema, following the ringed shape. No treatment is required. The only thing to do, is to avoid the cause, if not necessitated by the occupation. The pigmentation is permanent, but fades to some extent in the summer.

Erythema Pernio. *Deriv.*—*Πτέρνα*, the heel. *Synonyms.*—Pernio; Chilblain; *Fr.*, Engelure; *Ger.*, Frostbeule.

Symptoms.—People with a feeble circulation (see p. 26) or of strumous constitution, and many young people up to about twenty years, and a few older ones, are very liable to chilblains in the winter. They commence as ill-defined erythematous patches on the hands and feet, especially the heel and borders of the feet; the redness has generally a dusky hue, and is accompanied by tenderness and intense itching and burning, whenever the feet get warm. If neglected, or subjected to friction from the boots or stockings, more distinctly inflammatory symptoms arise, affect the tissues more deeply, and vesication and superficial ulceration of an indolent character, and even a small slough, may ensue; in persons * of very feeble circulation, where often the whole extremity is blue from venous congestion, and who are subject to "dead fingers," the chilblains may occur in comparatively warm weather. The only condition that is likely to give rise to error, is the unusual condition of lupus erythematosus, which sometimes affects the fingers as a permanent erythematous blush; in it, however, the duration will be a test, and it persists in summer as well as in winter; moreover, it is not attended with the itching and burning of chilblains, and there is inflammatory infiltration, with more or less scaliness, followed ultimately by superficial atrophic scarring.

Treatment.—In this, prevention is emphatically the best treatment, and may generally be effected by wearing warm coverings to the affected limbs, with thick boots not spring-sided, and active exercise, such as vigorous walking, running, or skipping for children.

The hands should be washed in very hot water, not warm, dried very quickly and carefully, and then enveloped in gloves. General measures of invigoration are often required, and Fowler's

* According to Leslie Roberts, tuberculin injections may produce or aggravate chilblains.

solution in small doses, commenced as soon as the cold weather sets in, is said to be a prophylactic.

When they are present *internally*, opium was recommended by Skey. Nepenthe, 1 to 15 minims three times a day, is a convenient form of it. Nitro-glycerine has also been found of service; a tablet three times a day for an adult, facilitates the circulation through the congested area.

Locally, at the commencement, calamine lotion should be applied several times a day; afterwards, tincture of iodine, painted on, for the feet, or decolorised with one part of liquid ammonia to two parts of tincture of iodine for the hands, is useful, but the ung. iodi rubbed in is better. Equal parts of lin. camphoræ comp. and lin. belladonnæ well rubbed in twice a day, or careful strapping, or wrapping up the foot with cotton wool under a bandage, are also efficacious; so, too, is the old woman's remedy of soaking the part in very hot brine. When broken, the ung. calaminæ B.P., or boracic ointment, spread upon lint, or wet boracic lint covered with oiled silk should be applied; but, above all, rest and general warmth are necessary. Many other methods have their advocates; but if the preventive measures are simultaneously practised, and one of the above remedies perseveringly applied, they will be successful in giving relief, but any relaxation in the prophylactic means will soon be followed by a return of the chilblains if the weather is cold; hence the large number of "infallible cures" for this common and tormenting affection.

Erythema Intertrigo. *Deriv.*—*Inter*, between; and *tero*, to chafe. *Synonyms.*—Intertrigo; Eczema intertrigo.

Symptoms.—Some class this with eczema, but by most it is admitted to be an erythema. When in a fat person or in an infant two adjacent parts of the skin are in constant contact, the friction, the moisture, and the heat of the parts are apt to give rise to a superficial redness, together with an exudation of a thin muciform or purulent fluid, which differs from eczematous fluid, inasmuch as while it stains, it does not stiffen linen. In adults, it occurs almost exclusively in fat people at the groin, axilla, or neck, but sometimes the prepuce or vulva, and under the breasts in women. In infants it often occurs in the folds of the neck, but it is most frequent about the buttocks, and there is no doubt that the

irritation of the wet napkin, whether from urine or fæces, is often the exciting cause, and among the poor sometimes, from the urine-soaked napkin being simply dried and used again. The mothers often ascribe it to "thrush," which has "gone through the infant." Many of these cases are really due to congenital syphilis.

Diagnosis.—In adults it has to be differentiated from *eczema*. The difference in the exudation, the position and circumstances under which it occurs, are sufficient generally to determine the nature of the lesion, but in some cases, eczematous inflammation actually supervenes.

In infants, the buttock eruption has to be distinguished from *congenital syphilis*, which often manifests itself as erythema of the buttocks; but whereas intertrigo is almost invariably limited to the site of the napkin, the erythema of congenital syphilis extends down the legs often to the heels and soles, and ulceration and other signs of syphilis would generally be present; at the same time it must be borne in mind, that congenitally syphilitic children are more liable to ordinary intertrigo than others.

Treatment.—In adults, desiccating powders should be freely dusted on to the affected parts, and a piece of lint placed so as to separate the two surfaces, or the powders may be placed in Unna's powder bags (see p. 47). Good applications are oxide of zinc, one part to three of starch, or one part of oleate of zinc to three of kaolin, finely pulverised; and powdered boracic acid diluted with kaolin, or the Sanitary Rose powder, is also useful. In a few cases, powders do not suit as well as an ointment, and then boracic acid gr. 20 to ℥j adip. benz. or vaseline is a good application. In others, the lactate of lead lotion, constantly applied, is one of the best. In infants, especially with diarrhœa, care should be taken that the napkins are changed at once when wetted, the parts cleaned and carefully dried, and the powder or ointment applied; in these cases, the ointment is preferable, as the moisture less easily affects the greasy skin. Diarrhœa and other defects of health must always receive special attention.

Erythema Læve is applied to the redness frequently seen in œdematous limbs, and occurs chiefly on the legs; here, there is of course swelling from the anasarca; the skin looks bright red, tense, and shining, and there is often no doubt more than mere hyperæmia; unless the tension of the skin is soon relieved,

vesication and ulceration, and even sloughing, may ensue. The term is not so often used now as it used to be.

Erythema Paratrimma is an almost obsolete term for the erythema over a bony prominence, etc., that precedes the formation of a bed-sore; here also the process soon goes on to inflammation.

Erythema Fugax is, as its name implies, a transitory redness of a patchy character, which comes out quite suddenly, mostly upon the face or trunk, chiefly in the young, and after lasting from a few minutes to a few hours gradually disappears. In children, it is frequently associated with irritating ingesta, worms, or other cause of irritation of the intestinal canal. Getting heated by exertion or alternations of temperature, and even mental emotion, will sometimes produce it, but the cause is often obscure. The affection is more allied to urticaria than to the other erythemata.

The *treatment* is conducted upon the same principles as that for urticaria, which see.

Erythema Urticans is only the early or pink stage of the urticarial wheal. See Urticaria.

Group II.—This group, according to the definition, would include many of the exanthemata, such as scarlatina, measles, rötheln, beri-beri, etc., and such diseases as pellagra, but the eruption in most of them is the least important element, and all but the last, are formed into a separate group on other grounds. It includes also the eruptions produced by many drugs in certain individuals, from some special idiosyncrasy, but all these are referred to under their appropriate heads, and some descriptive adjective is usually added to point out the character of the erythema.

The varieties now to be considered are E. roseola and E. scarlatiniforme.

Erythema Roseola. Roseola is a term used by some authors to designate some forms of erythema, which are of not quite so bright a hue as the others. The distinction is superfluous, but as the term is in common use it must be explained; if retained, it would be better to use it as a specific title to the generic erythema, or for general as opposed to local erythemata. It may be idiopathic, or symptomatic.

Idiopathic Roseola occurs mainly among infants and young children. Its onset is generally attended with constitutional symptoms,—a transitory elevation of temperature, sometimes amounting to three or four degrees, restlessness, quickened pulse, furred tongue, and perhaps some redness of the palate and fauces, but there are no catarrhal symptoms. After a short but variable period, the eruption appears; it may be general or partial, affecting the whole body or only a limb, the face or neck; it is very variable in size and shape, at one time in patches the size of the end of the finger, at another faintly papular, or it may be in rings or gyrate figures; it may come at one place and go at another, and so last several days. Willan gave separate names to some of these phases, such as R. infantilis, æstivalis, autumnalis, annulata, but they are entirely superfluous, and have deservedly dropped into disuse.

Etiology.—Though these eruptions are most commonly seen in children, they may occur in older persons, and both sexes are equally liable to them. In some children, the eruption comes out every spring and autumn, and it often appears to be due to disorder of the alimentary canal. When seen in adults, it has been ascribed to suppressed gout, changes of temperature, acidity, and many other causes, which are often merely an excuse for our ignorance of its origin.

Symptomatic Roseola.—This may be patchy or diffuse, morbilliform or scarlatiniform, and may occur either in the onset or course of a large number of febrile or other affections. As the rash is only a part of these diseases it does not require a separate description, the circumstances under which it occurs being of chief importance.

Diffuse or large patches of erythema may precede or accompany the outset of the more characteristic eruptions of vaccinia, variola, and less frequently of varicella; it may also be occasionally observed in the algid stage of cholera, in diphtheria and malaria; the last is sometimes called *roseola febrilis.* Less frequently the eruption in any of the above diseases, may be scarlatiniform or morbilliform. This patchy erythema or an urticarial rash may also be seen in influenza and dengue, but in these, scarlatiniform or morbilliform eruptions are much more frequent, and purpura occasionally occurs. Small patches the size of the end of the

finger, of a dull red colour, are the usual accompaniment of the onset of syphilis, and very often of leprosy; but, as a rule, the patches in this are larger and persistent.

It is a futile distinction to try and discriminate between morbilliform and scarlatiniform roseola on the one hand, and erythema scarlatiniforme and erythema morbilliforme on the other. Simply a slight degree of lividity is more apparent in the so-called roseola, but this depends more on the individual than the cause. Similarly, the individual rather than the cause determines whether the rash shall be morbilliform or scarlatiniform, and indeed, whether there shall be any rash or none, is often equally the result of idiosyncrasy.

Erythema Scarlatiniforme is the form which the rash takes in the great majority of the cases. It may appear sometimes quite suddenly, punctiform, erythematous, and exactly resembling scarlet fever in most of its features; but it does not begin in any special position, and it is common to find the eruption sharply defined in places, especially beside the nose, if the face is attacked, leaving a tract of, by contrast, preternaturally white skin between the two hyperæmic areas. In a large proportion of cases, the face escapes altogether. The punctiform appearance is not always preserved, the redness becoming continuous, and, as in other erythematous eruptions, the red skin is whitened for a moment when the finger is drawn across it. There is some constitutional disturbance, usually slight, the temperature being 100° or 101°, but soon subsiding, and the fauces are reddened more or less. If the general symptoms are severe, they are due to the disease in whose course the eruption appears. The subsidence of the rash, which occurs in from two to six days, is usually, but not always, followed by desquamation, furfuraceous as a rule, but it may be free and in large flakes, according to the intensity and duration of the erythema.

Under the name of *Erythema scarlatiniforme desquamativum* Besnier, Brocq,* and other French authorities describe simila eruptions to those already mentioned, but with greater tendency to be diffuse instead of punctiform; the course is much longer (three to six weeks), and there is great liability to recur, often at certain seasons, especially spring and autumn; but the successive attacks usually get milder. The mucous membranes are often involved, there is some angina, and the tongue peels so that

* Brocq, p. 265, and Besnier, *Path. des Érythèmes Ann. de Derm.*, vol. i. (1890), p. 1.

it is smooth red and raw-looking; febrile symptoms are often present at first. Desquamation in large flakes begins in three or four days, and after about a week the scales get finer and cease in two or three weeks. The nails and hair may be shed in a severe attack, and the nails, even in milder cases, are sure to be furrowed by it. Recurrence is common, especially in rheumatic and albuminuric patients (Arnozan's case five times); but, on the whole, the etiology is almost as variable as in the other scarlatiniform eruptions, and is chiefly the result of idiosyncrasy. Brocq considers that this is really a mild form of pityriasis rubra, and there can be little doubt that some, at all events, of the cases are referrible to that disease. Others are in association with albuminuria, and are of uræmic origin.

Etiology.—This is not always ascertainable, and such cases are euphemistically termed idiopathic. Besides the causes already stated, it is seen not infrequently in the course of acute rheumatism; in septicæmic conditions, as after surgical operations, but not often from this source, now that antiseptic precautions have been generally adopted; where pus is shut up in a cavity, *e.g.*, abscesses, tubercular peritonitis, and empyema; in gonorrhœa, even where no copaiba has been given; preceding, or in the course of enteric fever, according to J. W. Moore, at the end of the first or in the third week, the first being of vaso-motor origin, the second being septicæmic; in puerperal women, and in children in the course of ague; in uræmia (see p. 25) and in tuberculin injections (sometimes morbilliform, or even patchy), and in a case with artificial anus, auto-intoxication with ptomaines was reasonably probable (Lépine and Molière).

I have also seen it in sewer-gas poisoning with an ulcerated throat, commencing on a level with the nipples sharply defined there, and spreading nearly all over the body.

A precisely similar eruption occurs after certain drugs, especially mercury, copaiba, quinine, belladonna, salicylic acid, etc. (see Dermatitis medicamentosa). In the latter class, the rash is probably due to irritation of the alimentary canal acting reflexly on the vaso-motor centres. It may also be produced by external irritants, especially mercurial inunction, exposure to great heat, etc.

Diagnosis.—This is obviously very important in such a rash, but not always easy, or even practicable. From a well-marked case of *scarlet fever* there would rarely be much difficulty; the fauces,

though red, are not swollen; the typical strawberry tongue is absent; the temperature is rarely over 100° F., and soon falls; the rash is often not general, perhaps limited to the trunk, with healthy skin between the erythematous areas, and the borders of the erythema are often sharply defined; the characteristic features of scarlatina would be absent, without which it is never safe to make a positive assertion that the disease is infectious. From mild cases of scarlatina some of the above criteria may fail, and then only time will clear up the diagnosis; meanwhile, isolation is the only safe course.

From *measles*:—The morbilliform eruption may resemble the exanthem very closely, but it would often not begin on the forehead, as measles does, and the rash would often not be general; the prodromata, coryza, and other general symptoms of measles would be absent. Instead of the temperature continuing to rise after the eruption was out, as in measles, it would soon fall, and the patient would not be so ill, as in most cases of measles.

From *rötheln*:—There may be much difficulty, as the elevation of the temperature is often transitory in both; but the sub-maxillary, occipital, and sternomastoid glands are nearly always enlarged in rötheln, and not in the morbilliform rash. There might be evidence of other people being attacked, which would not be the case in morbilliform erythema.

It must always be borne in mind, that the diagnosis of all the exanthemata should never be made on the rash alone, and indeed not on any one or two symptoms, as there is great variation in the development of every feature of these diseases, as regards incubation, prodromata and general symptomatology, and in doubtful cases, a conclusion can only be arrived at by carefully weighing the symptoms as a whole, and noticing accurately how the supposed exanthem differs from the usual type, remembering, that the more fully the rash is developed, the less likely are the other criteria to fail in a real exanthematous fever.

Treatment.—No special treatment is required for the rash itself, which will certainly subside in a few days, but the general indications are, to clear out the alimentary canal, and to protect the patient from alternations of temperature. If there is irritation or tension of the skin, calamine liniment or lotion would give relief, or the inunction of almond oil or other simple fat. Alkaline and bran baths, with friction, facilitate the completion of the desquamation.

CLASS II.

EXUDATIONES—INFLAMMATIONS.

The various forms of dermatitis constitute a large group, comprising many of the most important and common diseases of the skin, such as eczema, psoriasis, acne, and varieties of lichen. Such diseases as urticaria and pemphigus are also included, though Auspitz and some other dermatologists do not regard them as true inflammations; but the distinction is more theoretical than practical. Acne, sycosis, miliaria, and some others, though belonging to inflammations, are, for convenience sake, described with the other diseases of the appendages of the skin. Inflammations of the skin are very diverse in their origin, course, and external manifestations, the one connecting link being, the presence of inflammation in all of them.

The symptomatology, also, is very wide, almost all forms of primary and second elementary lesions being present in one or other of the group. The process may single out one of the skin structures for its chief point of attack, or affect them all, or take only the superficial or the deep layers. Thus, while all layers may eventually be affected, in psoriasis the most conspicuous changes are in the rete; in eczema, in the papillary layer; in carbuncle, in the deeper layers; in acne, the sebaceous glands are primarily affected; in lichen and sycosis, the hair follicles; in miliaria, the sweat glands or their ducts.

A few, like erythema exudativum or herpes zoster, run a pretty definite course; but most, while they may be acute or chronic, tend to go on indefinitely, unless efficiently treated.

ERYTHEMA EXUDATIVUM.

Definition.—An acute inflammatory disease characterised by symmetrical, raised lesions of some deep shade of red, extremely diverse in size, shape, and degree of elevation.

This group includes E. multiforme, Herpes iris, E. nodosum, and Peliosis or Purpura rheumatica.

Erythema Multiforme.* As its name suggests, this disease presents a most varied aspect, chiefly from differences in the size, shape, colour, and aggregation of the lesions, but also from the occasional formation of vesicles or bullæ upon, or the occurrence of hæmorrhage into, the primary lesion. To these phases, different names have been given in past times, which will be explained in the description ; they serve to express briefly, the aspect presented at the moment to the observer, and they will, probably, be retained, as the eruption is often limited to a particular phase in certain individuals, and that, too, in every successive attack.

Symptoms.—The onset of the eruption is usually preceded and accompanied by constitutional symptoms, slight as a rule, but sometimes of considerable severity. They consist of pains in the joints, and perhaps malaise, slight pain in the head, back, and limbs, gastric disturbances, and sometimes even enlarged spleen ; these symptoms, with a temperature of 100° to 104°·5, and a corresponding pulse rate, may lead to the suspicion of acute rheumatism. On the other hand, in many cases, some or all of these symptoms are absent, very slight pains in the joints being the most constant. After a varying interval of from a few hours to four days, the eruption appears, usually upon the backs of the hands and feet, and subsequently in crops upon the face and rest of the limbs, rarely on the trunk, and it is especially abundant round the most painful joints. The temperature may fall upon the outbreak of the eruption, though it may keep above the normal for some days, or it may continue to rise until the rash is fully out.

The extent of distribution of the eruption is very variable, for whilst it may be general, including and even commencing in the mucous membranes of the eye, tongue, and mouth, it is often limited to one or two regions ; but whatever other parts may be affected, it is seldom absent on the back of the hands. Although symmetrical in the main, the symmetry is not absolute, the

* *Literature of Erythema.*—Lewin, *Berlin klin. Wochensch.*, No. 23, 1876, and *Charité Annalen*, Bd. iii., p. 622 ; Moritz Kohn (Kaposi), *Archiv für Derm. u. Syph.*, Vol. iii., p. 381 ; Lipp, *Archiv für Derm. u. Syph.*, Vol. iii., p. 221 ; Schwimmer, *Die neuropathischen Dermatonosen*, p. 101.

eruption being often more developed, or coming out earlier, upon one side than another. It commences in the form of groups of deep red papules, from a pin's head to a small split pea in size, slightly raised, and obtusely conical or convex (**E. papulatum**); these speedily enlarge, and if very closely arranged at first, they may coalesce into a slightly raised, deep red plateau or patch; or, if discrete, may enlarge to the size of a nodule or tubercle (**E. tuberculatum** or **tuberosum**); continuing to develop peripherally, the centre becomes depressed, of a purplish hue, and a ring is formed (**E. circinatum** or **annulare**). As the effusion is absorbed in the centre, and spreads at the periphery, zones of colour may be produced, varying from purple to pink, and constituting **E. iris**; still enlarging, and meeting adjoining lesions, the ring is broken, and gyrate curves are produced (**E. gyratum**).

Closely allied to this is **E. marginatum**, which generally begins as a flat disc a quarter or half an inch in diameter, and very rapidly enlarges at the periphery, subsiding *pari passu* in the central older part; joining similar adjacent lesions, it forms a sinuous broad margin, abruptly limited externally, and sloping internally; rolling onwards, as it were, it traverses the circumference of a limb, or a large area on the trunk in a few days, leaving fawn-coloured pigmentation, which disappears very slowly, to mark its track.

As the groups of papules come out in crops, each crop undergoing similar changes, several of the various phases described may sometimes be seen simultaneously on different parts of the body, fairly earning Hebra's title of "**E. multiforme.**" As accidental features, vesicles or bullæ may form on any of the above lesions (**E. bullosum**), or hæmorrhages may occur into them, and the affected extremities are sometimes livid and œdematous. More or less brownish staining of the tissues is almost always left.

It must not, however, be supposed that the above description applies to all cases; indeed, it is only in a very few that all these forms can be traced; generally the eruption stops short at one or other of these phases, and then, after a short time, involutes without further development, and each succeeding attack generally recurs in the same form. E. papulatum is the form most frequently, and E. marginatum the least frequently, seen alone. Occasionally, instead of spreading by successive crops, the eruption of E. papulatum will come out suddenly and extensively.

Duration.—The duration for all forms appears to be usually from two to four weeks, but many cases by a close succession of attacks go on for a much longer period. Colcott Fox * records two cases in which a brother and sister had never been quite free from E. gyratum for sixteen years, the disease commencing in early childhood, and they had severe attacks every three months, with a constant succession of minor ones. These, however, were anomalous cases; and Pye Smith,† who also had the cases under his care, took a different view of them.

Children.—The general symptoms, especially the elevation of temperature, are often more marked. The lesions are apt to be more severe, and the contents, if any vesicles form, more apt to become purulent and leave scars. The eruption appears to be less frequently, simultaneously multiform.

Erythema or Herpes Iris. Herpes iris is almost as closely allied to E. annulare as E. marginatum is to E. gyratum, which has already been described. The vesicular or herpes variety is, however, usually considered as a separate disease, belonging to the herpetic group, though few modern dermatologists dispute its being really only a vesicular erythema. In the usual types of erythema, vesication is the exception; in these forms, it is the rule; moreover, the varieties with which we have now to do, do not occur as a part of E. multiforme, but always arise independently. In other respects, the general history is the same as that of E. multiforme.

There are two types of this affection, one with a central vesicle or purplish depression surrounded by one or more whitish rings, slightly raised up by effused fluid; the other, always has a central bulla, with one or more rings of more or less discrete vesicles round it.

Herpes iris is always an uncommon affection (1·6 per 1000), but the first variety is much more frequently met with than the second.

Symptoms.—The commonest type usually begins at night, with a stinging and itching sensation, soon followed by a small, slightly raised red spot, and upon this in about twelve hours, a conical pin's-head-sized vesicle is formed. The vesicular part increases in diameter, flattening as it does so, but always with a narrow

* *Clin. Soc. Trans.*, vol. xiv., p. 67, with coloured plate, and *Internat. Atlas*, plate xvi.

† *Guy's Hospital Reports*, vol. for 1881.

red areola on its outer border. When the lesion is about a quarter of an inch in diameter, the fluid is absorbed in the centre, and a purplish depression results, or a ring only of absorption occurs, and then a vesicle will remain in the centre surrounded by a purplish depressed zone, and outside this a raised ring, white from the fluid beneath, and beyond this the narrow pink areola. This constitutes a typical patch, and it is from these different-coloured concentric rings that the name of iris is derived. In a mild case, when the disc has reached to about half or an inch in diameter, which generally occurs in about a week, it soon begins to involute, the areola fades, the fluid is absorbed, and the disc flattens down, leaving only a purplish discoloration; the whole process being complete in about a fortnight. The favourite positions are the backs of the hands and fingers, especially the thumbs, index and middle finger, the elbows and wrists, the insteps and knees. The lesions are generally symmetrical, though often the corresponding discs are several days later than the first, and are perhaps less developed. As the discs come out in small crops by repeated outbreaks, the disease as a whole lasts from two to four weeks, or even longer.

Variations.—In more severe cases, the patches may be much larger by the addition of a similar series of rings, or large irregular patches may be formed by coalescence of neighbouring lesions; the amount of effused fluid also varies considerably; the central small vesicle may develop into a large bulla, even up to an inch in diameter, and still larger by coalescence, and there may be hæmorrhage into the bulla. Instead of being confined to the extensor aspect of the limbs, it may attack the palms, soles, and other flexor aspects, and also the face and the mucous membranes of the mouth, tongue, palate, and larynx, and in rare instances, the trunk also, so that universal herpes iris may result; in such severe cases hæmaturia * also has occurred. I have also seen it all round and also under the nail,† but the nail substance was not affected. When it affects the mucous membranes, the lips may be much swollen, and covered with vesicles or black blood-crusts on the outside, and with muco-pus inside; the mouth can scarcely

* A case in the Vienna hospital, reported in *Brit. Med. Jour.*, July 19th, 1885.

† Elizabeth M., out-patient, U.C.H. She had annual attacks for ten years.

be opened, the tongue is swollen, and covered with white lines, the remains of ruptured vesicles; the soft palate and uvula may be involved; the orbital connective tissue is swollen and ecchymosed, and there is conjunctivitis.* Superficial ulceration occurs sometimes when the lesions are rubbed, to which the irritation experienced incites the patient, or when the contents of a bulla becomes purulent.

The second variety is rare. The name of herpes iris was first given to it by Bateman, and hydroa vésiculeux by Bazin. In this, round a central bulla a ring of vesicles is formed, either quite discrete or touching, but so that their separate origin is evident. The vesicles are about the size of a small split pea, much smaller than the one in the centre. A second or third concentric ring of vesicles may form outside the first; between the vesicles and rings the skin is of a purplish tint. The following case showed a slight variation from this description. A girl æt. two years, was brought to University College Hospital with rings of congestive erythema on the face and neck about the size of a crown piece; a few days later, these had disappeared, and in the centre of their site was a large bulla; round this, a ring of discrete vesicles appeared, the contents of which soon became purulent, and when the dried scabs fell off the face was scarred as badly as if she had had small-pox; the child had several slight, almost abortive, attacks in subsequent years, each one slighter than the one before. This recurrence is the rule for all the varieties; the attacks are usually annual, and at about the same time each year, but some patients have three or four attacks per annum.

It is sometimes associated with other forms of herpes, H. facialis, labialis, preputialis, etc.; and on this ground, and because it is vesicular, Colcott Fox would separate this form; but its other features clearly designate it as belonging to erythema, in my opinion.

Erythema Nodosum (*Synonyms.*—Dermatitis contusiformis; *Fr.*, Erythème noueux) is a disease of childhood and adolescence, being rare after twenty and under three years. It is seen twice as often in girls as in boys.

* U.C.H., out-patient Elizabeth J., æt. forty-one, seventh attack; the mucous membranes were as described; round the knees were single and compound bullæ, from half to two and a half inches in the longest diameter. Typical patches were present on the hands.

Symptoms.—It begins generally with articular pains in the lower extremities, with perhaps some febrile symptoms, an elevation of temperature of three or four degrees Fahr., seldom more, and highest in the evening, a furred tongue, and general malaise; but these symptoms, with the exception of the articular pains, may be quite absent. There is pain and tenderness over both tibiæ, and in one to three days from the onset roundish or oval, symmetrical, node-like swellings appear, with the long axis vertical over the tibiæ. They come out two or three at a time, but are altogether not numerous, seldom more, and generally less, than a dozen. They vary in size, from a large nut to an egg, are not well defined, but diffused gradually into the surrounding tissues; they are tender and painful, rather firm at first, but soften, and become semi-fluctuating, but never suppurate; their colour is bright or rose red at first, but they soon get a more dusky hue, and as they disappear undergo the changes in colour of a bruise. The eruption usually lasts eight or ten days, but, by the appearance of fresh lesions, may go on for two or three weeks. Recurrences are rare.

Variations.—The tumours may come over the ulnæ, and I have seen them over the scapulæ, the condyles of the humerus, and on the thighs. As a rule, these tumours are smaller than those on the leg. It has been seen along with E. multiforme (Tilbury Fox), and I had one case in which there were E. tuberculatum lesions with it, and also herpes labialis. Lewin found other forms of erythema in twenty-five out of fifty-five cases; but this is not in accordance with usual experience, which is, that such an association is an uncommon one. Perhaps the fact that when the lesions are not over the superficial bones they depart from the usual type may account for the discrepancy; nevertheless, it is sufficiently frequent to show that the different forms of eruption are related, and that E. nodosum is not an altogether independent type, as many authorities hold. Duhring says E. nodosum may affect the mucous membranes; Uffelmann * and Oehne, quoted by Duhring, state that it is a bad omen when it occurs in children with a tuberculous family history, and that it is then associated with general tuberculosis. Amongst the many thousand children that have passed through my hands at the East London Hospital for Children, I have never seen anything to lead me to suppose that there is any

* *Vierteljahr. für Derm. u. Syph.*, 1874, p. 174; 1877, p. 230; 1878, p. 324.

connection between tuberculosis and E. nodosum. Perhaps it was the following affection,

Erythema Induratum is an affection described by Bazin as "Érythème induré scrofuleux." It attacks the calf, or immediately below it, more frequently than the front of the legs, and has often a single plaque, but there may be many. Bazin speaks of it as acute in its onset, bright red at first, but gradually assuming a violet hue, and it is in either a diffuse, ill-defined patch or in nodules. As I have seen it, the nodules may be either superficial or deep in the cutis, the latter often showing no alteration on the surface, and only perceptible to the touch. The more superficial are bright red at first, fading to a more livid hue; the borders are ill-defined; and the lesions, which may be either in nodules or plaques, are from a quarter to an inch or more in diameter, always better felt than seen, and they may coalesce into large brawny infiltrations in the calf, and less frequently in the front of the leg. These indurations, with or without a slightly livid surface, may either be very slowly absorbed, or they may necrose and slough out, leaving a very indolent ulcer, strongly suggestive of specific origin. Strumous girls and young women are most liable to it, but it may occur in boys, and I have seen it in a woman over fifty, who had, however, suffered from the same thing when a girl. In a severe case, in a woman æt. thirty-seven, there were a few nodules on the upper limbs. It is most frequent in winter, especially in those who have cold hands and feet and have much standing; hence washerwomen are frequent victims. Pain and tenderness are usually absent, but may be marked. The absence of febrile symptoms, the long duration, the relapses and indolent characters of the affection, and the small number at first of the lesions, distinguish it from true erythema nodosum. From gummatous syphilis, it differs in its etiology, duration, evolution, and finally, if there is still doubt, by its not responding to specific treatment; indeed, iodide of potassium often aggravates it. The disease is a rare one in this country. The treatment is not very satisfactory. Prolonged rest with the legs raised, tonics, and good living seem to be the most successful measures; but the course is generally very slow.

Etiology of Erythema Exudativum.—Frequency, 11·5 per cent.—*Age.* Though no age appears to be exempt, young adults are the

most frequently attacked. The youngest case in my experience was a case of E. papulatum in a child of five months; the oldest, an E. marginatum in a man of seventy-one years, but it is rare in elderly people. In E. nodosum, S. Mackenzie * found sixty-nine out of one hundred and eight cases occurred between ten and thirty, fourteen under ten, fifteen from thirty to forty, and ten over forty. Comby † met with a case æt. fourteen months.

Sex.—The preponderance of evidence is in favour of all forms being more common in the female sex, though Hebra said it was most frequent in males. S. Mackenzie found five females to one male in E. nodosum.

Season.—It is most frequent in spring and autumn, especially the month of April, but in many instances cold weather is an excitant.

Previous attacks certainly predispose to others, and their recurrences tend to come out at the same time of year as previous attacks. Hebra says that roseola cholerica is really an E. papulatum, that cholera is the only definite cause he knows of, and that it is never due to local irritation; but this is an error. I have had cases, in one of which exposure of the extremities to cold, in another exposure to the sun, and in a third exposure to brine-laden winds, were certain excitants for E. papulatum; one of these patients was a medical man, who was quite certain about its origin.

Further, mercurial inunction would always produce E. iris in one of Kaposi's patients,‡ and in another it was the prodromal eruption of variola.

Nevertheless, such instances are exceptional. Though unable to get definite proof, I am strongly of opinion that sudden alternations of temperature, especially chills after having been over-heated, are frequent determining influences, and that the rheumatic and gouty are more likely to be influenced by it. Lewin and Kaposi agree that irritation of the urethra, *e.g.*, from gonorrhœa or instrumental erosions, is another excitant, and Duhring thinks that irritating

* "On Erythema Nodosum, especially dealing with its connection with Rheumatism," by S. Mackenzie, M.D., *Clin. Soc. Trans.*, vol. xix., p. 215. A valuable paper, with an analysis of one hundred and eight cases.

† He read a paper on E. nodosum in infants at the Soc. Méd. des Hôpitaux, reported with discussion *Jour. des Malad. Cutan.*, vol. ii. (1890), p. 356. He denies its relation to rheumatism or to paludism.

‡ Kaposi, p. 294, 2nd Ger. ed.

ingesta may produce it; but these cases are more probably urticarial. In a large number of cases, no irritating or exciting cause can be discovered.

With regard to the relation of E. nodosum to rheumatism, S. Mackenzie came to the following conclusions:—1. That E. nodosum is frequently associated with definite rheumatic symptoms, *e.g.*, arthritis, sour sweats, sore throats, etc.; 2. That heart disease (endocarditis) may arise during an attack of E. nodosum, both in cases in which arthritis is present and in cases in which there is no affection of the joints; 3. That these conclusions justify the inference that E. nodosum is frequently, if not generally, an expression of rheumatism, even when no other definitely rheumatic symptoms are present.

Boïcesco * of Roumania has found it to be common in children of from two to eight years old, exposed to malaria, especially as an immediate sequel of an ague attack; but this does not appear to be so common in other malarial countries, so probably there are other factors. C. F. Moore, of Dublin, from twelve cases in his own practice, shows that defective sanitation, especially as regards food and drains, is a strongly predisposing cause.

Pathology.—Cordua and Luzzato have independently found cocci in the blood and lesions of patients suffering from erythema multiforme, and Manssurrow found bacilli and spores in four cases. These they believe to be the materies morbi; and many writers, both in France and Germany, regard it as an acute specific disease, usually, but not always, of a mild type, founding their opinion on the frequent presence of premonitory symptoms of a febrile character, the fairly definite course, and the occasional endemic outbreaks. These views require further proof before they can be definitely accepted, but they are worthy of consideration. Turning to the pathological mechanism of these eruptions, that they are not merely the result of hyperæmia is evident even from their clinical features alone, and the anatomy also shows that there is inflammatory effusion both of fluid and leucocytes. The fluid is usually only sufficient to push up the epidermis into a papule or nodule; but in herpes iris, and occasionally in the other forms, it is in larger quantity, and forces its way between the rete cells, and forms vesicles or bullæ.

* Abs. from *Roumanian Archives of Medicine, Brit. Jour. Derm.*, vol. i., 1891, p. 346.

Lewin,* Auspitz, and Schwimmer† consider them all angio-neuroses, and that the effusion is due to a vaso-motor disturbance when there are no febrile symptoms, and to true inflammation when general symptoms are present. That there is an escape of blood-colouring matter into the tissues is evidenced by the staining left after the departure of the rest of the lesion, and actual rupture of vessels and hæmorrhage is the rule in peliosis rheumatica, and an occasional feature in all forms of erythema; in some of these hæmorrhagic lesions sloughing occurs.

Anatomy.—In a patch of E. tuberculatum ‡ excised from the side of the neck of a man æt. fifty-four (Fig. 10) I found the upper half of the corium broken up, and the space filled with cell effusion, very dense in some parts and looser in others, as if separated by fluid. The cell effusion sometimes extended sparsely to the bottom of the corium, especially along the hair follicles and sweat ducts, but it was, for the most part, confined to the upper half. In some places there was slight proliferation, and consequent thickening of the rete, and the palisade cells were stained with blood-colouring matter. There was no downgrowth of interpapillary processes, and the horny layer was unchanged. The changes therefore were essentially those of inflammation of the upper part of the corium.

Diagnosis.—The multiform and changing aspects of the eruption, the acute onset, the occurrence in crops, the localisation to certain regions, the symmetry, the persistence for days of individual lesions, leaving staining behind, the comparatively slight itching, the tendency to recur at the same season of the year and to be associated with articular pains and febrile symptoms, are the most diagnostic features. It may be confounded with urticaria, rötheln, E. nodosum, and papular eczema.

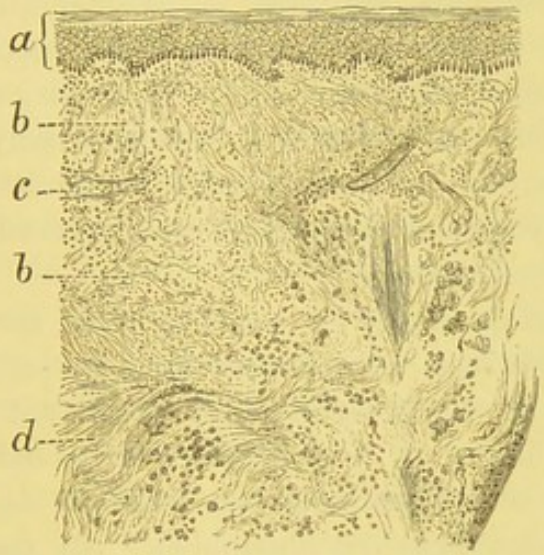
It is only when the wheals of *urticaria* are red or pink instead of white that any difficulty can arise; to the common white wheals there is no similarity. In urticaria, the wheals are evolved in a few minutes, are never such a deep red as in erythema, do not begin as papules and increase at the borders, but attain their full size at once, and are not symmetrically arranged; there is intense throbbing and itching, usually moderate in erythema, except in herpes iris, and it is rare for urticarial lesions to persist for more than a day, or to leave stains behind. There is no tendency to

* *Berl. klin. Wochenschr.*, No. 23, 1876.

† Schwimmer, *Die neuropathischen Dermatonosen*, p. 101.

‡ Leloir has also investigated the anatomy of this and some other forms of erythema. Abs. *Annales de Derm. et de Syph.*, June 1885; and also plates xiii. and xiv. of Leloir and Vidal, 1891.

special localisation and seasonal recurrence in urticaria, and the outbreak can frequently be traced to irritating ingesta, though external influences play an important part; special constitutional symptoms are almost always absent, though a slight rise of temperature in very acute and extensive outbreaks may occasionally be observed. In the vast majority of cases, reference to these points settles the matter conclusively, but sometimes there is a difficulty in separating urticaria from general papular erythema, as the evidence may be so evenly balanced that different observers may take opposite views.



* Fig. 10.—Erythema Tuberculatum from the side of the neck, × 125.

a, Epidermis; *b b*, round cells between the fibres of the upper half of the corium, which are widely separated, probably by serous effusion; *c*, blood vessel; *d*, normal corium. The dark round bodies beyond *d* are transverse sections of muscular fibres.

Rötheln is only to be confounded with E. papulatum.

In both rötheln and erythema, there may be transitory and moderate elevation of temperature, or none at all, but the other general symptoms are very different: catarrh of the pharyngeal, tonsillar, and other mucous membranes, with enlargement of the glands behind the sterno-mastoid, are present in rötheln and absent in erythema, and there are no special articular pains in rötheln. The eruption begins on the face and forehead, and spreads over the body. The spots are round or oval, not flat, generally remain small, and are of rosy red, never deep red like E. papulatum, and less frequently confluent.

* The case from which this was taken is recorded by Tilbury Fox, *Clin. Soc. Trans.*, vol. xi. (1878), p. 85.

In herpes iris, the discs, composed of concentric rings of various tints round a central vesicle, symmetrically disposed on the hands, knees, and insteps, are so characteristic that error is scarcely possible, and the difference between it and *E. iris* is only one of name and the amount of effused fluid. In addition to vesication being a constant feature, herpes iris differs from the *other erythemata* in its being more frequent in middle-aged women than the others, and in articular pains not being frequently observed before its onset.

In E. nodosum, the oval tender nodes over superficial bones, like the tibia and ulna, can only be mistaken for the *nodes of syphilis*. If, as occasionally happens, these occur in the early secondary period, when they may be symmetrical, red, and very tender, the similarity to those of E. nodosum may be great; but in such a patient, the antecedent pains would have been severe, and the other symptoms of syphilis well marked, as they would never occur in a mild case.

With regard to the nodes, so common in the tertiary period, the number would be less, except sometimes in congenital syphilis, the development is much slower, they would not be symmetrical, they would be harder at first, would not be red until they had been present for some time, and some evidence of past or present syphilis would doubtless be obtainable. In the rare cases of nodes in children, from congenital syphilis, there would be for a long period slow development and absence of redness, while the influence of iodide of potassium, a drug which has no effect in E. nodosum, would soon be manifested in nodes of syphilitic origin.

In *eczema papulatum*, the papules are acuminate, small, and remain so, and some of them usually become vesicular, while the burning and tingling is much more severe, and constitutional symptoms are absent.

Prognosis.—The disease is almost sure to get well in from one to four weeks, leaving only stains, which disappear a few weeks later, except in the rare instances in which there are pustules, when there is likely to be scarring; all forms, except E. nodosum, are nearly sure to recur, probably at the same time, in the following year. When associated with endocarditis and the other serious conditions mentioned, the prognosis concerns the disease with which the eruption is the concomitant, rather than the erythema.

Treatment.—Since the eruption tends to get well of itself in a short time, internal treatment is seldom required, and it is doubtful whether it has any direct influence upon the course of the disease; still, any indication in the shape of defective health should be carefully sought for, and if possible rectified. If the presence of a rheumatic diathesis can be established, salicylate of soda in gr. 15 doses three times a day, or an acetate and citrate of potash mixture, might be given. In middle-aged or elderly people, gouty tendencies should be looked out for and counteracted. In a large number of cases iron, with an aperient, such as Startin's mixture (Mixtures, F. 16), is useful. Iodide of potassium is considered to be a specific by Villemin; 30 grains a day cures it, he says, in three or four days. Locally, calamine lotion is all that is required, and if there is much pruritus the addition of liquor carbonis detergens gives temporary relief. In obstinate cases, when fresh crops keep appearing, rest in bed, insuring complete protection from alternations of temperature, is often sufficient of itself to terminate the eruption. When any debility is present careful feeding up is necessary, but alcohol is seldom desirable, and is generally contraindicated. Relief from mental or bodily strain should be afforded as far as possible.

In herpes iris, the patients are often much out of health, and feel weak and languid, and then iron, quinine, and cod-liver oil would be required. Locally, the itching and burning are best relieved by lead lotion, consisting of liq. plumbi subacetatis ℥xv to aquæ ℥j; or lactate of lead applied on lint.

In *E. nodosum*,—*Internally*, if there are febrile symptoms, the diet should be restricted to liquid nourishment for a few days. A saline aperient, followed by iron, is appropriate to a large proportion; or, in view of its frequent association with rheumatism, salicylate of soda gr. 10 to gr. 15, according to age, three or four times a day, may be indicated. In older people, citrate of iron with citrate of potash, or iron and aloes, or other aperients, are most suitable; but no routine treatment can be laid down.

Locally, rest, with the legs elevated, should be strictly enjoined. In some adults who cannot lay up bandaging carefully but firmly with an elastic bandage is the best substitute. One of the lead lotions just mentioned, applied warm, is usually most grateful to the patient. However marked the fluctuation may be, the nodes should not be opened, as absorption invariably takes place.

Another condition to which the term erythema is often applied, especially by surgeons, is a superficial dermatitis, which spreads rapidly at the edge, often over a large surface, fading at the older parts, and followed by desquamation. It is attended with febrile and other constitutional symptoms of only moderate intensity, is seen most frequently in connection with wounds, and is, I believe, **superficial erysipelas**; but Liveing, though admitting its many points of resemblance to that disease, considers it a separate affection.

Mention must here be made of the so-called **E. gangrænosum.** The term has been applied to apparently spontaneous patches of superficial gangrene or ulceration, which are seen chiefly, if not exclusively, in hysterical women. These are undoubtedly self-induced, and their want of symmetry, their predominance on the left side and in easily accessible positions, and the circumstances under which they occur, will generally lead to the correct conclusion. I agree with Tilbury and Colcott Fox, that there is no disease entitled to the designation of E. gangrænosum. See also "Feigned Diseases."

PELIOSIS RHEUMATICA.

Deriv.—*Πελιός*, livid.

Synonym.—Purpura Rheumatica.

Definition.—An acute disease, characterised by pain in some of the joints, accompanied by an eruption of red, raised patches or papules, which do not fade on pressure, or by purpuric spots.

This affection, which is rather a rare one, was first described by Schönlein. It presents nearly all the characteristics of exudative erythema, except that the hæmorrhages are a constant instead of an exceptional feature, and the joint trouble rather more severe than usual. I have therefore thought it more scientifically consistent to describe it with the affections with which its affinities are evidently of the strongest, than to follow the majority of authors, who place it under Purpura.

Symptoms.—The patient complains of malaise, lassitude, and pains of moderate intensity in the limbs, especially the joints, which are often slightly swollen and tender. After lasting from a few days to a day or two, during the evening or night an eruption appears, and the pains then often abate. In many cases, but not

in all, the eruption is most abundant in the neighbourhood of the joints in which the pain has been greatest, and upon the calves; the knees and ankles are always involved, the elbows and wrists frequently, the trunk rarely. Sometimes the order is different, the eruption preceding the pains. The skin lesions consist of slightly raised papules or patches, from an eighth to one inch in size, bright red at first, like an E. papulatum and tuberculatum, but unaltered by pressure, and soon becoming purplish; or they may be obviously hæmorrhages from the first, and not at all elevated. Even purpura hæmorrhagica, with all its various phenomena, may supervene (Scheby-Buch); but this is very rare. The temperature may be raised to 100° F. or 102° F., but no relation to a fresh attack, the joint affection, nor the eruption can be established, the temperature being often normal, when all these phenomena exist in as great severity as in those in which the temperature is raised. In two or three days, or less, the pain subsides, while the hæmorrhages take the usual time for extravasations to undergo absorption. The attack may recur after an interval of from ten days to two or three weeks. The same or fresh joints are again attacked, and the whole process is repeated, though sometimes with variations as to eruptions and pains, the disease dragging on in this way for a period of weeks or months. Purpura has been many times noted as a complication of acute rheumatism; but valvular murmurs * have originated in the course of peliosis rheumatica, and left permanent organic changes both in the valves and muscular wall of the heart, where there was nothing in the shape of high temperature, the severity of the articular lesions or sweating, etc., to indicate that true rheumatic fever was present. Besnier and other French authors regard this as a proof that P. rheumatica sometimes has an etiological relation with valvular lesions. It may well be, however, that their relationship is only that of community of cause, and that is probably rheumatism.

There is a form of purpuric erythema closely allied to purpura rheumatica which may be indeed identical as regards the rash, but the general symptoms are not so much arthritic as gastro-intestinal,

* *Wiener med. Wochensch.*, No. 32 (1883), p. 991; Schwarz on two cases of P. rheumatica with acute aortic insufficiency, in Kaposi's *Clinique*. Abs. in *Ann. de Derm. et de Syph.*, vol. v. (1884), p. 31. Also Oliver in *International Clinics*, vol. iv.,—two fatal cases of endocarditis.

the patient vomiting blood or passing it *per anum*. In a case under my colleague Dr. Poore, which he asked me to see—a man æt. about thirty-five—the intestinal hæmorrhage was so great and uncontrollable that the patient nearly died; the rash was in purpuric papules about the elbows, knees, wrists, etc. In a girl æt. thirteen, under me at Shadwell, the rash consisted of bright red papules all over the extensor aspect of the upper limbs, but somewhat dusky red in hue on the legs. They were flatly convex, not definitely circular; very abundant, but discrete on the arms above the elbow, but on the legs, were in great part confluent. The whole of the rash, even where of the brightest red colour, was unaffected by pressure. This was the fourth annual attack; the three preceding had been at or before Christmas, commencing with severe abdominal pains, vomiting and purging with blood in every motion and vomit, and the breath was very offensive. There were also hæmaturia and more albumen than the blood would account for. The first and second attacks were the worst. The rash then was similar to the present, but worse, the legs being swollen and painful; the ears had black blisters, and "the eyes turned black." The symptoms generally lasted three or four weeks, but on this occasion she had frequent recurrences, at short intervals, for six months. She was admitted to the hospital, and with rest in bed, tonics, and good feeding rapidly recovered.

A precisely similar eruption of varying grades of intensity, but characterised by the erythematous appearance and absence of alteration by pressure—in short, an **Erythema purpuricum**—is more frequent without any general symptoms, or with slight pains in some of the joints or œdema of the legs. Of this character is the eruption called by Hutchinson* purpura thrombotica. In some of the lesions the hæmorrhage is sufficient to destroy the vitality of a portion of skin, and a slough ensues. When its mode of formation has not been observed, and the slough separates, the ulcer, in association with a red papular eruption which leaves stains, is strongly suggestive of a syphilitic ulcer. The mode of development of both sore and rash, and the absence of other signs of syphilis, will, if the observer is aware of this form of disease, suffice to distinguish it. I have had a case, sent me by my friend Dr. Coutts, of purpuric erythema multiforme in a girl of twelve, in whom, after pains in the head, knees, wrists, and ankles, a circinate

* *Syd. Soc. Atlas*, plate xxxix.

and papular bright red eruption appeared on the extensor aspect of the limbs, unaltered by pressure. Two of the lesions consisted of two concentric circles, and at the ankles there were irregular vesicles and bullæ containing purplish serum. The rash is always worst on the legs.

Etiology.—Women are more frequently attacked than men; it is most common between twenty and thirty, but it may occur in children. People who have had rheumatic fever, and rheumatic subjects generally, as well as those who have had previous attacks, are more predisposed to it, and the season has an influence on some people; but of exciting causes, little is known, except that chills appear to be the factor in many instances.

Pathology.—The lesions are primarily those of E. exudativum; but why in these patients hæmorrhages should be a constant instead of an accidental feature, as usually obtains in erythema eruptions, is, as in so many other purpuric lesions, at present inexplicable. In the less common event of hæmorrhage being the only lesion, it is probable that the giving way of the vascular wall has prevented the usual exudation by relieving the tension of the vessel. That the disease is, like other forms of erythema, a vaso-motor neurosis, is a plausible theory, but not demonstrable at present.

Diagnosis.—The diagnosis presents no difficulty, the occurrence of articular pains, with some swelling and a purpuric eruption, being sufficient. In short, joint pains and symmetrical purpura constitute P. rheumatica. The fact that the redness did not fade on pressure would distinguish it from the ordinary type of erythema.

Prognosis.—It is, in an uncomplicated case, quite certain that the patient will get well; it is equally uncertain when that will be, and it is highly probable that he will have another attack at some future time. In complicated cases, the prognosis is that of rheumatic fever, endocarditis or of other complications, such as the development into purpura hæmorrhagica.

Treatment.—Rest in the horizontal position is important, getting up too soon being alone sufficient, in many cases, to reproduce the pains and purpura. Even when there is no definite evidence of rheumatic fever, salicylates often give decided relief to the pains, though they do not seem to have any influence in preventing the recurrence in a few days. Quinine and iron, separately and

in combination, appear to be beneficial in some cases. McCall Anderson * treats it, like ordinary purpura, with turpentine or ergot. A liberal dietary is generally required, often with stimulants, and strict attention must be paid to hygiene and to the special indications of each case; but in many cases, the disease runs its course uninfluenced by treatment.

PELLAGRA.†

Deriv.—*Pellis* (Lat.), skin; *ἄγρα* (Gr.), rough.

Synonym.—*Span.*, Mal de la rosa; or, Mal roxo.

Definition.—An endemic trophoneurotic disease of toxic origin, produced by diseased maize, and affecting the cerebro-spinal, digestive, and cutaneous systems.

Pellagra was first observed in Spain in 1735, as recorded by Casal in 1762, and is now nearly confined to its northern part; to northern and central Italy, especially Lombardy, Æmilia, Venetia, and the south of Austria bordering on it; to Roumania and Corfu; and, until recently, in the south-west of France, but it has now died out there. All the affected districts are between 42° and 46° of northern latitude.

Symptoms.—The symptoms which are referable to the nervous system, alimentary canal, and the skin, almost always begin in the spring, with weakness, lassitude, giddiness, headache, articular pain, severe burning sensation in the back, radiating thence to the limbs, especially the hands and feet; the tongue is furred, the epigastrium tense and painful, and the bowels are loose, sometimes with slight jaundice. The skin is the last region affected, primarily and chiefly in the parts exposed to the sun, viz., the backs of the hands and forearms, the face and neck in women and children whose faces are much exposed, and, when the person goes barefooted, the dorsum of the feet also, and occasionally the back and

* Clinical Lecture on Peliosis Rheumatica, *Brit. Med. Jour.*, vol. i. (1883), p. 1103.

† *Literature.*—Hirsch's "Geographical and Historical Pathology," *Syd. Soc.*, vol. ii., p. 217, gives a very good account of the disease, to which I am much indebted. There is also a full bibliography, amongst which the writings of Lombroso and Roussel are most important. Paul Raymond's article, *Ann. de Derm. et de Syph.*, vol. x. (1889), p. 627, gives a good account of the skin symptoms, from which I have borrowed.

chest. The distribution, says Paul Raymond, is very definite, as a rule, only on the back of the hand, not extending beyond the first interphalangeal articulation, and above, not beyond, the back of the wrist, the forearm being only occasionally affected. On the foot, it only involves the upper half of the dorsum from the level of the malleoli, and only the front of the neck down to the first piece of the sternum, seldom the nucha. The erythema often develops suddenly within twenty-four hours, and lasts from ten to eighteen days. It consists of diffuse, bright, dark, or livid red erythema, which disappears on pressure unless the congestion is so severe as to be hæmorrhagic, for petechiæ are common, and there may be bullæ also, which either dry up or rupture, and leave indolent erosions; the skin is swollen, tense, and burns or itches, especially in the sun. In about a fortnight, the erythema subsides, becoming dark in the centre, and laminaceous, seldom furfuraceous, and desquamation follows, leaving the skin beneath still thickened and more or less pigmented of a "café au lait" tint, or even sepia or dull brown; ephelides are also common. The thickening and pigmentation increase after each attack up to four or five years, when atrophy sets in. Then the skin dries, wrinkles, and withers like that of cachectic old age, and is so thin and lax that it can be pinched up as easily as it was difficult before. The nails and hair are unaffected. The skin manifestations thus present three stages: (1) congestion; (2) thickening and pigmentation; (3) atrophic thinning.

To return to the general course:—

After lasting up to July or August, the symptoms decline, and the patient seems quite well in the winter, but in the next spring all the symptoms reappear, either with the same or greater severity, though sometimes the aggravation does not show itself until the third attack or later, when the patient is too weak to stand, emaciates, suffers from severe pains in the head and back, the third nerve is paralysed more or less, and in four out of five cases there are changes in the fundus oculi also. Meanwhile, the rash may extend all over the body, with the changes already described, and may lose more or less sensibility. The tongue gets red and dry, there is a burning sensation in the mouth, deglutition is painful, diarrhœa increases to profuseness, all the cerebro-spinal symptoms, many of them meningeal, are aggravated, and the patient is delirious, sinks into a typhoid state, and dies.

Insanity is very common, chiefly in the form of mania, or there

may be melancholia, with a tendency to suicide by drowning, all pellagrous patients liking to see and touch water; or the patient may sink into utter imbecility; in the young it often takes a special form, in which the body and organs of generation are defectively developed, while the mental powers are precocious and active.

Other less common symptoms are, paresis of extensors, paralysis of the whole limbs and bladder, atrophy of the heart, alkaline urine of low specific gravity (1005), but no albumen, with dropsy and colliquative foul sweats, as well as the diarrhœa. When the symptoms are not very severe, the disease may last ten or fifteen years, but the average duration is five years.

Etiology.—This may be summed up in the alliteration, Peasant life, Poverty, and Polenta. Women suffer most and children least frequently, the commonest age being from thirty to fifty. The disease occurs almost exclusively (90 per cent.) among the poorest peasants of the districts affected; but though it is predisposed to and aggravated by poverty and bad hygiene generally, the immediate cause is the toxic influence analogous to ergotism, produced by eating decomposed or fermented maize, during which, as Lombroso's experiments show, a fatty oil (maize oil) and an extractive "pellagrozein" are produced, and the administration of these to men and animals excite pellagrous symptoms in them. The disease is not contagious, and is doubtfully hereditary, since both parents and children are subjected to the same influence. Sporadic cases are said to occur in France far away from the pellagrous districts, and it has been suggested that possibly other grains, such as oats, may undergo similar changes, and produce similar effects. These are really, however, cases of what Roussel called pseudo-pellagra, which present to some extent analogous symptoms. They occur in chronic alcoholism with peripheral neuritis, and in asylums amongst the demented and general paralytics. Leudet believes that there is a pseudo-pellagra connected with poverty, but if so the disease ought to be universal.

Pathology.—Lombroso infers, on good grounds, that it is due to a toxic effect on the sympathetic and vagus.

The morbid anatomy shows four classes of changes:—

1. Hyperæmias and inflammatory processes, leading to exudation, hypertrophy, etc., in the brain membranes, liver, spleen, kidneys, and lower part of the intestines;

2. Atrophy of the heart, lungs, liver, spleen, kidneys, and skin;
3. Fatty degeneration of various organs;
4. Pigmentary changes, which are especially characteristic.

Déjerine* found parenchymatous neuritis of the cutaneous nerves, but this was a case of pseudo-pellagra in a chronic alcoholic. P. Raymond could find none in a true pellagrous patient with atrophic skin.

Diagnosis.—This would turn on the position of the patient, exposing him to the influence of diseased maize or other cereal, the triad group of symptoms, depression, diarrhœa, and dermatitis, the erythema being on exposed parts, and the general course of the disease. In pseudo-pellagra, the totally different etiological conditions would suggest the true solution.

Prognosis.—This is only favourable if the attacks are of slight intensity, or if there has been not more than one previous attack, and the patient can be placed under favourable conditions. In other cases, the outlook is very bad, and the nervous system, even at the best, is apt to be permanently damaged.

Treatment.—Lombroso recommends for prophylaxis, the better storing and gathering of the maize, so as to avoid fermentative changes. Subsequently, when the disease has developed, removal into good surroundings, good feeding, and treating the patient according to circumstances; opium is recommended when there is fear or stupor; quinine in prostration; calomel, arnica, and cold douches for diarrhœa; but of all remedies, arsenic is the most effectual; one-half to two minims of liquor arsenicalis should be given daily; in infants, friction with chloride of sodium is beneficial.

Acrodynia or **Epidemic Erythema** † is a disease closely allied to pellagra and ergotism, which occurred first in Paris and some other French towns as an extensive epidemic in 1828 to 1830 and 1831, and has since been observed on a small scale chiefly among Belgian and French soldiers and prisoners; the last occasions being among the Mexican and Algerian soldiers in Mexico in 1866, and in one French regiment near Versailles in 1874.

* *Ann. de Derm. et de Syph.*, vol. ii. (1881), p. 719.

† Hirsch, *loc. cit.*, vol. ii., p. 248, contains the best account, of which the above is an abstract. Also Alibert, *Monographie des Dermatoses*, 2nd ed. 1833, p. 12.

Symptoms.—The symptoms are those of gastro-intestinal irritation, redness of the conjunctiva, œdema of the face, soon followed by formication, pricking pains in the palms and soles, and a burning sensation, with at first, hyperæsthesia of those parts, especially the feet, and later on, anæsthesia ; then an erythematous eruption breaks out, preceded by bullæ according to Alibert, chiefly on the hands and feet, but it may spread over the limbs and parts of the trunk, followed by exfoliation and dark brown or black pigmentation, greatest in the warm regions of the body. In severe cases, the limbs waste, become œdematous, and there may be cramps, pareses, and toxic spasms. There is no fever, and it is seldom fatal except in the old and feeble, or occasionally from diarrhœa ; otherwise there is more or less complete recovery in a few weeks or months. There are no special post-mortem changes, and the pathology is obscure, but probably it is due to some defect in food, though this hypothesis lacks proof.

URTICARIA.

Deriv.—*Urtica*, a nettle.

Synonyms.—Nettle-rash ; Cnidosis ; *Fr.*, Urticaire ; *Ger.*, Nesselsucht ; Nesselausschlag.

Definition.—An eruption consisting of rapidly formed evanescent wheals, accompanied by burning and tingling.

Urticaria is a common disease, probably much more so than statistics would suggest (44 per 1000). There are four principal varieties—U. acuta, U. chronica, U. papulosa, and U. pigmentosa ; the last differs so much from the others, that it is considered separately. There are several sub-varieties, the most important of which are U. tuberosa, U. bullosa, U. hæmorrhagica, and U. factitia.

Symptoms.—In an ordinary case, the eruption comes out suddenly, either without any warning or preceded by burning and tingling of the skin, and sometimes by febrile symptoms.

The lesions consist of firm, circumscribed, flatly convex elevations of the skin, from a quarter to one inch in diameter, the general run being about the size of the finger nail ; they are at first red, and, as they develop, become white in the centre, and only the border is red, or they may stop short at the red stage. In short, as their name indicates, they are exactly like the lesions

produced by the nettle, urtica urens, and are called pomphi or wheals.

Their formation and presence are attended with burning, tingling, and itching, sometimes slight, but usually so severe as to oblige the victim to scratch vigorously, the temporary relief thus obtained being purchased at the price of a greater liability to the formation of fresh wheals, which develop in a few minutes, last from an hour to a day, or even several days, and then disappear, without desquamation or other sign of their presence.

The eruption is never symmetrical, the wheals have no definite arrangement, vary from one or two to sufficient to cover more or less completely the whole body, including the mucous membranes of the mouth, tongue, pharynx, and inferably other mucosæ, such as those of the air passages and stomach, dypsnœa of spasmodic asthma type and vomiting having sometimes been associated with the skin eruption. Leube noticed it along with temporary albuminuria, and Gruss* relates a case in which acute orbital retrobulbar œdema produced proptosis, and was associated with alarming cerebral symptoms.

Variations.—Most of the sub-varieties depend on the size, contents, and duration of the wheals, and a few on other considerations. The wheals may be very small, about one-eighth of an inch (**U. papulosa**), or they may be unusually large, as big as a walnut, hen's egg, or even larger (**U. tuberosa, U. gigans,**† Milton); these lesions are firmer and more persistent than usual, are few in number, and occur mainly in broken-down constitutions beyond the middle age. When the tissues of the affected area are lax, there is often much œdematous swelling (**U. œdematosa**); this is well seen on the face, where the eyes may be quite closed; the wheals here, too, generally remain pink throughout; the tongue may be so swollen as to threaten suffocation, but the swelling goes down in a few hours, and incisions are rarely necessary. A variety of this is the so-called **Quincke's disease**, or **acute circumscribed**

* In a discussion on Riehl's paper on "Circumscribed Œdema" at Imp. Soc. Phys. of Vienna, reported in *N. Y. Med. Jour.*, 1887, p. 268.

† Milton published a monograph on *Giant Urticaria* in 1878, in which he gives three cases. Juler relates one in *Cincinnati Lancet and Observer*, 1878; and Wilson one, 6th ed., p. 266. I have met with three cases. In one, a man æt. forty-four, a broken-down publican, the wheals were sometimes as large as a goose's egg. He was also subject to diffuse swelling occupying nearly the whole anterior surface of the thighs.

œdema, in which the orbital tissue or that of other parts of the face may swell up into a large tumour, or there may be a large ill-defined swelling of a great portion of the limb or other part of the body from subcutaneous œdema. Occasionally the subjective symptoms are present, but the wheals do not appear; this is the **U. subcutanea** of Willan; it is generally limited to the loins and thighs.

In a case of Morrant Baker's, which I had an opportunity of seeing, the patient, who had suffered from the disease for two years, had factitious urticaria, and in addition persistent mottled yellow and red tubercles, affecting the whole of the ears, the knuckles, and elbows; they were said to have begun just like the wheals, and some had disappeared while others had come out. They were very tender, and one over a knuckle had ulcerated.

At the Dermatological Society, October 14th, 1891, Morrant Baker showed a young woman, æt. twenty-four, who for the last year had a disease consisting of pea- to bean-sized, convex, pale purplish-red, firm nodules, rough to the touch like flat warts. They had come out in small numbers at a time; but as each one persisted, when presented to the Society, they were pretty numerous on the limbs, more on the extensor than the flexor surface. She believed none ever went away. They itched severely both during and after development. An early one on the back of the hand was of a brighter red and rather more acutely conical, and in the centre, was a horny dot formed round a follicle. Whilst under examination she scratched her forearm, and a distinct small wheal appeared. The general health was good.

Hæmorrhage may occur into the wheals (**U. hæmorrhagica**, or **purpura urticans**), and when the mucous membranes are affected may give rise to copious hæmorrhage. Thus, Pringle records a case of a gentleman of fifty, who had repeated attacks of alarmingly severe hæmatemesis, associated with outbreaks of urticaria of the body and visible mucous membranes; after two smart attacks of gout, the hæmorrhage and urticaria, which was never hæmorrhagic on the skin, diminished in severity, and became more amenable to treatment with subcutaneous injections of morphia and ergotin. In a boy of nine, under Murchison with U. tuberosa et hæmorrhagica, there was hæmorrhage from the bowels, kidneys, and urinary passages, and much uric acid in the urine. (See also Erythema purpuricum.)

When the serum which produces the wheal is more abundant

than usual it may force its way up through the rete, and elevate the upper layers to a bulla (**U. bullosa**); this is a much rarer event than might be supposed, and probably many of the recorded cases were hydroa herpetiforme, with which urticaria has close affinities; probably also crescentic urticaria is a form of hydroa.

U. Factitia exists where, owing to the excessive irritability of the cutaneous nerves, wheals can be excited by local irritation. This is the "dermographia" and "autographism" of fanciful writers. Letters can be inscribed with the finger nails or a pointed * instrument, and in a minute or two the white letters with pink borders stand out in bold relief on the skin; this condition can be produced even when the patient is under chloroform (Caspary). It is often very persistent, and may be associated with other forms. Confluent urticaria is U. conferta, and such terms as "ephemera" and "evanida" refer to the short duration of the wheals, and "perstans" when they last longer, with more hyperæmia than usual; it has, however, been used by some authors for U. chronica.

U. Acuta is often, though not always, an U. febrilis; when it is, the temperature may be raised 3° to 5° F. The pulse is quick, and there are marked signs of gastric irritation, nausea, vomiting, weight and pain at the epigastrium, furred tongue, pain in the head, and prostration. The eruption may not appear for a day or two, and then comes out copiously all over; the gastric symptoms are temporarily relieved, the skin and gastric symptoms alternating for some days; such cases are generally traceable to a definite cause, and when they are due to irritating ingesta, whether of food, medicines, etc., the eruption may follow the ingestion of the peccant material very rapidly, even while it is being eaten. When this is got rid of, the urticaria rapidly disappears, but the gastric mucosa may be left in a very irritable condition.

U. Chronica refers to the duration of the disease as a whole; the wheals come out acutely, and only remain a short time, but others form at either long or short intervals, and in some instances the interval is a regular one. Willan and Wilson both

* Féréol met with a man who procured his admission to different hospitals by imitating the measles, scarlatina, or variola eruption by varying the instrument of irritation.

refer to cases of this type where there were outbreaks once every week; it is also seen in ague occasionally, but not following the intermittent course of the fever. The eruption is rarely so extensive as in the acute forms, and there is less likelihood of there being general disturbance. The disease may last for an indefinite time, and though always relievable, is generally curable only with difficulty and perseverance.

U. Papulosa. This is the form in which urticaria generally presents itself in children, and is the "**lichen urticatus**" of Bateman. It is due, doubtless, to the tissues of the child being more ready to resent irritation than those of adults. And, instead of there being merely serous, there is actual inflammatory effusion into the papillæ, so that a papule is left after the wheal has disappeared. As usually seen by the practitioner, it is evidently an extremely pruritic eruption, suggestive of scabies, consisting of inflammatory pale red papules the size of a hemp seed, with scabbed tops. It is generally most abundant in an infant, about the loins and buttocks, but may be in any part which the child can reach to scratch; irregular flat scabbed pustular lesions (ecthyma) are often interspersed among the papules, and it is for this, frequently, that the child is brought; the wheals are often not present when seen by the doctor, and the mother generally says nothing about them unless they are inquired for. If they should happen to be present, they are often pink instead of white, and may be either of the ordinary size or very small, and sometimes are linear in the direction of the scratching. It is an extremely obstinate eruption, always worse in the summer. Hutchinson considers this disease to be entirely due to flea and bug bites and the like, in the first instance. I am convinced that this is far too narrow a view, that, though true of many cases, among the poor especially, irritation of the alimentary canal plays quite as, or even more, important a *rôle* in children than in adults, to say nothing of the other recognised causes of urticaria.

Colcott Fox,* in an elaborate clinical essay on this subject, says truly enough that vesicles or pustules may be present in addition to the papules; but he is, I think, certainly mistaken in supposing that the papular, papulo-vesicular or pustular, or even bullous

* "Urticaria in Infancy and Childhood," *Brit. Jour. Derm.*, May and June 1890.

eruptions, which I have described in connection with vaccination (see Vaccination Rashes), are only forms of lichen urticatus, though, of course, I admit that urticaria is sometimes a sequel both of varicella and vaccination.

Etiology.—No difference in age or sex brings immunity from urticaria, but it is more common in the female sex and in infants and children, in the latter, mainly in the papular form; it is also more common in the summer months.

Foremost amongst the causes of urticaria in all forms, is irritation of the alimentary canal, but the causes are so numerous that they must be classified into, first, direct or local irritation of the skin, and, second, indirect or reflex irritation.

Under *direct or local irritants* come the common stinging-nettle, contact with medusæ or jelly-fish, insect bites, *e.g.*, of fleas, bugs, mosquitoes, bee or wasp stings, some kinds of caterpillar crawling over the skin, violent scratching from any cause, *e.g.*, scabies or prurigo, and, occasionally, galvanic currents to the skin, poultices, etc.; sudden alternations of temperature, leading to chills, are also apt to produce it, much more frequently, I am convinced, than is usually supposed.

Indirect Irritation acts chiefly through the alimentary canal, which may be either healthy or unhealthy at the time.

(*a*) Food, even articles not usually considered injurious, may excite it, but the more frequent are shell-fish, especially mussels* and crabs; some kinds of meat, especially pork and sausages; fruit, such as nuts, almonds, and even strawberries; fungi, *e.g.*, mushrooms; branny food, such as porridge or oatmeal in other forms, etc.

(*b*) Medicines of many kinds, especially copaiba, cubebs, quinine, morphia, turpentine, salicylic acid, valerian, chloral, etc.; some consider that the occurrence of urticaria in ague is really due to the quinine given for the ague.

(*c*) Worms are a common cause in children, but the main cause in them is chronic intestinal catarrh, commencing often in early infancy, and from want of efficient treatment persisting for years. Rupture of a hydatid into the abdominal cavity produced violent

* Schmidtmann found a ptomaine he called "mytilotoxine" exclusively in mussels taken from impure stagnant water, and there is reason to believe that it is the product of a bacillus, cultivations of which proved fatal to animals.

urticaria, which lasted three days (McGillivray), and Fagge records a case following the treatment of an hydatid by electrolysis. Ordinary puncture of hydatid cysts has also been followed by urticaria, Debove thinks from absorption of some of the fluid into the circulation; but Graham argues that it is a reflex phenomenon, and not due to the nature of the fluid, and it has followed tapping for an ordinary pleuritic effusion. In most of the above instances, there is a predisposing idiosyncrasy on the part of the patient, and most of them come under U. ab ingestis, as it is sometimes called, and refer to acute attacks. In chronic urticaria, though many of the above agents will excite an attack, there is often defective digestion habitually present. The gouty diathesis is a predisposing cause, probably by its association with acid dyspepsia; indeed, dyspepsia, however induced, is one of the commonest factors. Others are—

Disorders in other organs, e.g., the uterus and ovaries, both functional and organic. Some women have urticaria just before each period, others have it at each pregnancy, others again during lactation. Leeches to the os, passing a sound, etc., are examples of direct irritation to the uterus causing urticaria.

It is associated with many spasmodic conditions, *e.g.*, asthma, and gallstone colic; it is also seen in diseases of the nervous system, such as neuralgia, locomotor ataxy, and emotional conditions; thus I know of a lady in whom the advent of strangers produced urticaria, and this sensitiveness increased, until a knock or ring at the front door would determine an immediate outbreak; Alibert gives several analogous instances. Where bile is free in the circulation, as in jaundice, it is frequent; and in conditions short of actual jaundice, such as lithæmia; it is not unusual in albuminuria and glycosuria also; and it has been found in association with rheumatism, purpura, and in intermittent fever; in the latter case, it is often controllable by quinine. It is often difficult, especially in U. chronica, to ascertain the original cause, as it may date far back, and have rendered the vaso-motor system so irritable that the most apparently trivial conditions will lead to it; and the mental attitude of the patient towards those conditions which he knows will produce it, is not unimportant.

Pathology.—Everything in urticaria points to its being primarily a vaso-motor disturbance, direct or reflex, central or peripheral. The course of events is probably this: a spasmodic contraction

is followed by a paralytic dilatation of the vessels, and stasis or retardation of the circulation in the papillary layer. Serous exudation then ensues, producing acute œdema, which lifts up the epidermis into a wheal; this is pink at first, but as the fluid increases the blood is pressed out at the centre, which becomes white, while the periphery is all the more hyperæmic. Whether the muscles of the skin take part in the process is doubtful, but it is supposed by many that they, by their contraction, limit the œdema and increase the prominence of the wheal.

Anatomy.—Vidal* excised a wheal during life, and found the "superficial and deep network of vessels dilated and gorged with blood without any alteration of their walls. Both the blood-vessels and lymphatics were surrounded by leucocytes, which were also scattered through the whole thickness of the cutis and massed together at certain points. A few were to be seen between the cells in the deepest layer of the epidermis. Here this structure was normal, but another piece of skin was excised from a wheal in which the epidermis had been raised into a vesicle. This vesicle contained a sero-albuminous fluid, and the *débris* of epithelial cells. In the middle layers the cells were vesicular, and those of the deeper layer granular. Leucocytes migrating among the cells in the deep layer of the epidermis were more numerous than in the other case." Neumann found a local œdema and ischæmia in a wheal produced on a rabbit with a stinging-nettle. Unna also, has examined a wheal, and found œdema of the lower layers of the cutis, forming fissures and loculi in the lymph vessels and spaces; he thinks the wheal is produced by a spasm of the large veins of the skin, which normally serve to carry off the lymph.

Diagnosis.—The sudden evolution and transitory duration of white or pink, itching or tingling elevations, or wheals, are quite characteristic.

The eruptions most like urticaria are those of *erythema papulatum* or *tuberculatum*, which may resemble pink wheals; but erythema is symmetrical, and seldom itches severely, and the lesions often enlarge peripherally, and in all these points it differs from urticaria.

Similar considerations would distinguish *erythema nodosum* from U. tuberosa; moreover, the tumours of E. nodosum are very tender.

U. papulosa is very like *scabies* in its general aspect, but there are none of the characteristic burrows, and the eruption is not between the fingers, and often not on the other favourite seats

* *L'Union Médicale*, February 24th, 1880; quoted in *Lancet*, vol. i. (1880), p. 537.

of scabies. It must, however, be borne in mind that the two may be associated, and that scabies may lead to urticaria; a history of urticaria is not enough, therefore, as it may be only secondary. Quite as often the urticarial element is overlooked, and it is only on inquiry that it is found that "the child comes out in bumps," or "water blisters," as if it had been stung by a nettle.

The erythema stage of *hydroa herpetiforme* might easily be mistaken for it; the crescentic arrangement of the lesions, which are always pink, their independence of ingesta, and the fact that vesicles or bullæ develop sooner or later as the rule, while in urticaria they are exceptional, would guide to a correct decision.

Prognosis.--Acute urticaria usually gets well in a few days or less, but some cases if untreated go on into the chronic form.

The chronic form depends largely on the possibility of removing or avoiding the cause or causes.

The papular urticaria of children is often a very obstinate affection, even when it seems to be well in winter, breaking out again when the warm weather sets in. I believe, however, that all cases are curable, if the parents will be sufficiently watchful against exciting causes, and will persevere long enough with remedial, and above all, with preventive measures.

Treatment.—For the successful treatment of urticaria, the detection of the cause is the most important preliminary.

An acute attack, due to irritating ingesta, is best treated by an emetic if seen sufficiently early, and at a later period saline aperients, such as sulphate and carbonate of magnesia (Mixtures, F. 1, 2, or 3).

These measures are often sufficient, but where any gastric irritation remains care must be taken, lest it lapses into the chronic form; bland and unirritating articles of diet, an effervescing soda mixture, or mixture of bismuth (Mixtures, F. 10), would be the line to follow.

In chronic urticaria, most careful inquiry into the habits of the patient, and the conditions under which the eruption comes out, should be made, the urine examined, and investigation of every organ and its functions may be required. In the vast majority of cases, however, it is with the alimentary canal that we have most to do. The diet should be carefully regulated; fermentable articles, such as pastry, highly seasoned or sugared foods, beer, etc., avoided; alcohol should be very sparingly taken, if at all; pure, well-diluted

spirits are the least injurious, and perhaps claret may be permitted ; the patient should be instructed to notice if any special article of diet or other circumstance leads to the outbreak. The bowels must be carefully regulated ; an aloes, belladonna, and nux vomica pill every night is often most useful (Pills, F. 1 or 2), with occasional salines, such as Carlsbad Sprudel salt, or seidlitz powders ; or alkalies with bitters, such as carbonate of soda and calumba ; or bismuth nitrate and nux vomica (Mixtures, F. 8 to 10). The gouty diathesis is a frequent offender ; alkalies, with the other measures for that condition, may be needed. Diuretics are often required, and act most beneficially in some cases (Mixtures, F. 7). And yet, with every care, and when all the functions are duly performed, there are cases in which the eruption will continually recur. It is then that we must seek the help of those neurotics which act on the vaso-motor centres, such as the tincture of belladonna, in full and increasing doses ; or, better, sulphate of atropia, $\frac{1}{150}$ grain cautiously increased may be daily injected subcutaneously. Antipyrin or antifebrin in ten-grain doses will often cut short an actual outbreak, and is sometimes curative.

In infantile urticaria from chronic intestinal catarrh, diet is of the highest importance, sweets of any sort should be absolutely interdicted, and starch cut down as much as possible ; therefore, no potatoes, toast instead of bread, while milk puddings of rice, etc., or sop, should only be permitted when mixed with maltine. All fruits, especially strawberries, should be avoided, except perhaps baked apples. A fair amount of meat may be allowed to a child two years old or more.

For drugs, bicarbonate of soda and bismuth, with carminatives, salicylate of soda or salol, and sometimes grey powder and pepsin, are the kind of drugs most frequently indicated.

In some of these apparently causeless cases, a steady course of arsenic in small doses, long continued, has been most successful in my hands ; but it must be given with discrimination, and never when the urticaria is connected with disorder of the alimentary canal, as it will then only add fuel to the fire. Bromide of potassium has been strongly recommended by McCall Anderson. Quinine in full doses is also successful, both in malarial urticaria and some other cases. Galvanism down the spine cured a case in which it came out in the erect and disappeared in the recumbent posture.

Strophanthus, ichthyol, salicylate of soda, and iodide of potassium

also have friends, but it is wiser to depend more on rational, carefully planned treatment than on specifics. I believe, however, in salol as an intestinal disinfectant in chronic intestinal catarrh.

Local treatment is very important; the irritation of the nails in scratching has a most injurious effect on the already irritated cutaneous nerves, and yet to tell the patient not to scratch is useless, unless relief is afforded in other ways.

The same remedies do for both acute and chronic cases; alkaline baths, warm but not hot, with or without scalded bran, or starch, sulphide of potassium, or carbolic acid baths, are all useful (Medicated Liquid Baths, F. 1, 2, 6). Dusting freely with flour relieves acute cases. Sponging with vinegar and water, or citric acid in chloroform water, have their advocates, but the best remedies of this class are, I think, the disinfectants. I have tried a large number, and they are all more or less useful. Foremost I would place liq. carb. detergens ʒij or ʒiij to water ℥viij; terebene ʒj to ℥viij; sanitas and water equal parts; salicylic acid, made soluble with glycerine and borax, ʒij to ℥viij; benzoic acid in saturated solution; carbolic acid ʒj or ʒij to ℥viij; evaporating lotions of spirit and water; or spirit and lead lotion (Antipruritic Lotions, F. 20 to 38); chloral camphor may be painted on, or camphor ball or menthol rubbed on obstinately itching spots. So many are mentioned because in chronic cases, either they lose their effect after a time, or, what is more likely, the patient loses faith and wants a change. The clothing and bedding also should be light and absolutely unirritating; at the same time the patient must be guarded against chills. Jacquet demonstrated the importance of this, by preventing urticaria entirely in one part of the body by wrapping it in wadding. Acute cases yield most rapidly, and even the chronic urticaria of children may be temporarily held in abeyance by keeping them in bed.

URTICARIA PIGMENTOSA (Sangster).*

Synonym.—Xanthelasmoidea (Fox).

This affection differs from ordinary urticaria, in many ways besides the presence of pigmentation with, or after, the wheals.

* *Literature.—Brit. Med. Jour.*, September 8th, 1869; *Clin. Soc. Trans.*, vol. xviii. (1885), p. 12 (case by the author, with analysis of previous cases and coloured plate). Colcott Fox's essay in *Med. Chir. Trans.*, vol.

The first case on record is Nettleship's, and there have been between forty and fifty cases recorded since, three of which were under my care; they represented the three types of cases—the nodular, the macular, and the mixed; one was pruritic, the other two non-pruritic.

Symptoms.—The eruption begins in the first six months of life, and is most abundant on the neck and trunk, next upon the limbs, face, and head, and only occasionally on the palms and soles; but no part of the body surface is exempt, and it has been observed on the palatal, buccal, and pharyngeal mucosæ. It commences by the formation of nodules or wheals, which are formed rapidly, often appearing in the course of the night, and are arranged singly, or in groups of three or four. At first, they are about the size of a small split pea, distinctly and sharply elevated above the general surface, and of a yellowish-red colour, with a narrow pink areola; subsequently, they increase in size, sometimes by coalescing, and become of a distinctly yellow or buff colour; while they resemble a wheal in form, they approach a xanthoma nodule in colour, but are firmer, and rarely of so bright a yellow. As fresh lesions are forming every few days, there may be seen simultaneously, in different parts of the body, nodules from the size of a hemp seed to a large bean, and extensive infiltrations, with the colour varying from a brownish-red in the recent, up to pale or deep fawn in the older formation. When once the nodules are fully formed and have become yellow, they may remain unchanged for a long time, even for years; occasionally, however, bullæ with clear contents form upon them, and dry up in a few days, leaving a thin crust upon the nodules. Other nodules may, after a variable time, shrink and become soft, wrinkled, and ultimately disappear, leaving brownish pigmentation, or, as in Hallopeau's case, white cicatrices. In my third case, there was pigmentation only, and no permanent elevations.

Itching, often severe, usually precedes and may accompany the formation of the nodules, and with this ordinary wheals appear, and factitious urticaria is common; rubbing will also lead to enlargement of older and apparently quiescent nodules, and

lxvi. (1883), p. 329, gives abstracts of all cases up to date and microscopical diagrams. Paul Raymond, "L'Urticaire Pigmentée," *Thèse de Paris*, 1888, gives a complete *résumé*—relates fully twenty-nine cases. Doutrelepont, *Archiv für Derm. u. Syph.*, vol. xxii. (1890), p. 311, gives references to several other recent cases besides his own, and reports of cases are now getting too numerous to specify.

ecthyma may appear as another consequence of scratching. In some of these cases, the wheals and the bullæ preceded the nodules, but it is probable that the bullæ do not form independently of wheals or nodules.

In non-pruritic cases, all these secondary lesions are absent. After a variable period, always several years, fresh nodules are no longer formed, and the old ones are gradually absorbed by the time puberty is reached, if not sooner. In Levinski's case,* however, fresh nodules were still making their appearance at eighteen years of age.

Wallace Beatty † has recorded three cases of urticaria with pigmentation presenting several peculiarities. Two were brothers, æt. twelve and fifteen; the other was a lady, æt. twenty-three. They all had urticaria of the ordinary type, and one boy had also factitious urticaria. Besides the ordinary wheals, extremely irritable red papules, from a quarter of an inch in diameter, appeared in crops, which in a few days flattened down and became brown spots of corresponding area, many of them with a white centre; in the case of the boys, the brown spots, which were rather larger than those of the lady, ultimately became quite white, smooth, foveated, or with radiating lines on the surface, and firm to the touch and level with the skin, but there was no atrophy of the skin structure, only of the pigment. The affection was very chronic, and affected all regions of the body. These cases are clearly not of the same nature as the urticaria pigmentosa under consideration. Elliot's ‡ case was probably one of this kind.

Etiology.—The majority of the cases have been boys, and nearly all have commenced before three months. The earliest age was one of my own cases, in which red patches were noticed when he was first washed, and white wheals came a day or two later; the latest, æt. eighteen months (Stellwagon). This very early commencement suggests some congenital predisposition, but beyond this we cannot go.

Pathology and Anatomy.—Microscopical examinations of the tubercles have been made by Thin § from a case of Morrant Baker's, Hoggan, Pick

* Virchow's *Archiv*, bd. 88, 1882.
† *Brit. Jour. Derm.*, May 1891, p. 136.
‡ *Amer. Jour. Cut. and Gen. Urin. Dis.*, vol. ix. (1891), p. 296.
§ *Clin. Soc. Trans.*, vol. x. (1877), p. 198.

of Prague, Colcott Fox from Tilbury Fox's most severe case, and by Unna, Raymond, Elsenberg, Doutrelepont, Quinquaud, Nicolle, etc. Thin came to the conclusion that the structure was indistinguishable from lupus. Pick found hæmorrhages in the skin surrounded by small cell infiltration. The observations of the other investigators agree fairly well, except in minor details.

Its structure represents a typical wheal with cell infiltration, numerous giant cells, free œdema, and small hæmorrhages, with pigment deposition in the lower cells of the rete. The enormous number of giant cells, when the lesion is fairly recent, are regarded as characteristic by Unna, Quinquaud, etc.; but whether they are derived from migration or connective tissue cells is a disputed point.

That the disease is in any way related to lupus no one who has observed the clinical course and aspect could believe, and that the eruption is really of urticarial origin is evidenced by the consideration of the recorded cases as a whole, and not by aberrant cases like Fox's and my own first case; moreover, most of the distinctive appearances of this eruption are seen as occasional features in ordinary urticaria. Thus, great persistence of the wheal is seen in U. perstans; bullæ occur in U. bullosa; pigmentation followed ordinary wheals in a case shown by Liveing at the Congress of 1881, and by a case of Kaposi's,* a girl of thirteen and a half. Exudation into the papillæ is seen in U. papulosa, and hæmorrhage, in U. hæmorrhagica.

Diagnosis.—The permanent buff-coloured, wheal-like nodules generally associated with ordinary wheals, and always commencing in early infancy, are quite distinctive; but when the permanent lesions are distinctly yellow, without itching or any urticarial symptoms, and the case has gone on for a very long time, it is liable to be mistaken for xanthoma tuberosum.† A careful study of the lesions and of their mode of development, with their firmness to the touch and the early age of onset, will distinguish them. Pigmentation following wheals, and without any permanent lesions, is met with in adults.

Prognosis.—The disease will get well ultimately by the time puberty is reached, if not before; but this is all that can be said of it.

Treatment.—Nothing hitherto tried has appeared to have any effect in removing the eruption, though much can be done to

* Abs. in *Viertelj. für Derm. u. Syph.*, vol. xiii. (1886), p. 712.

† *Vide* case of xanthoma multiplex, *Lancet*, May 12th (1888), p. 923. Dr. Barr was kind enough to show me this case, which had some very large permanent yellow plaques. Factitious urticaria was also present, and I had no doubt of the case being an urticaria pigmentosa. See also case reported from Russia in *Brit. Jour. Derm.*, vol. iii. (1891), p. 65.

relieve the pruritus by local means, which are of the same kind as for ordinary urticaria. In future cases, I should try belladonna in full doses, and even atropia injections, as described under Urticaria, if the child were old enough. In one of my cases, with chronic intestinal catarrh and offensive motions, relief was always obtained if the bowels were put into order, but an imprudent mother never kept them so long. Salol in three to five grain doses three times a day is indicated in many such cases.

PRURIGO.

Deriv.—*Prurio*, to itch.

Synonyms.—*Fr.*, Strophulus prurigineux (Hardy), Scrofulide boutonneuse bénigne (Bazin); *Ger.*, Juckblattern.

Definition.—A disease, characterised by the presence of constantly recurring, discrete, chronic inflammatory, white or pale red, slightly raised papules, most abundant on the extensor surfaces, and accompanied by intolerable itching.

There are two varieties of this disease—P. mitis (Willan) and P. ferox (Hebra),* the difference being one of intensity rather than kind. The latter has only been recognised of late years as occurring in this country, except as the rarest possible event. Other varieties have been made by some writers, by using the term prurigo in the same sense as pruritus. This leads to confusion, and should be avoided.

Symptoms.—Individually, the papules are the colour of the skin at first, to be felt, rather than seen; but as they get scratched they become more raised, convex, pale or even deep red, with a dark scabbed top (blood-crust) at the apex. Their size is from a hemp seed to a large pin's head, and they are never grouped. They are most abundant and highly developed upon the extensor surfaces of the extremities, and in the order of intensity occur on the legs below the knee, the front and outer surfaces of the thighs, the forearms, the thorax back and front, the sacral region and buttocks, the lower part of the

* Mr. Morrant Baker read a paper on "Prurigo" at the International Congress of 1881, and showed some cases which the German authorities present acknowledged to be the true prurigo of Hebra. Since then I have had many cases, and seen many more belonging to others.

abdomen, the arms, and dorsum of the feet. A few papules only appear on the face, whilst the flexures are almost always free, as are also the neck, palms, soles, and scalp. The hair is, however, dull, dry, and dusty-looking. The itching is most intense, and the consequent scratching produces thickening of the skin, striated and diffused pigmentation, deepening of the natural furrows, while the lanugo hairs of the surface are broken off or torn out, and fine mealy scales are abundantly detached. When the disease shows no further symptoms than these, and the papules are moderate in number, or, as occasionally happens, limited to the lower extremities, it constitutes the **P. mitis** of Willan; but when it attains to the intensity of **P. ferox**, the papules and scales are more abundant and larger, the legs and forearms feel like very coarse brown paper, which is a characteristic symptom, and secondary lesions are so invariably present, though not without intermission, as to be essential parts of its symptomatology.

These are (1) eczema, which may be so extensive as to cover the parts with crusts and mask the original disease, the flexures, however, being rarely involved; (2) urticarial wheals; (3) ecthymatous sores; and (4) sympathetic enlargement of the femoral glands, often developing into large tuberous masses; while those in the axillæ and above the elbows are also enlarged, but to a less extent. This gland-enlargement remains when the other eruptions are quiescent for a time, and may thus assist in the diagnosis.

There is no special defect of health associated with prurigo, except what may be due to loss of sleep; but of course they are liable to the same diseases as other people. The face is generally clear and pale.

Etiology.—It affects both sexes, but males twice as often as females, according to Ehlers; it is essentially, though not exclusively, a disease of the poor, want of food and bad hygiene being the most important factors; and, according to Hebra, it is aggravated by cold weather. This, however, is contrary to my experience; all my severe cases were better in winter, while, of the mild cases, two were worse in summer and three in winter. As regards age, it begins usually in the first* year of life,—in

* In James W., æt. seven, *U. C. H.*, October 1891, a well-marked case of moderate severity, the mother was positive that he was well up to the age of six. Ehlers found that the extremes were from a few days to twenty-nine years. He analysed 207 cases from Haslund's clinique. *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 861.

several of my cases it dated from three months old,—and apparently begins as an urticaria papulosa or lichen urticatus. At the beginning of the second year, according to Riehl, small wheals appear together with the larger wheals, and it shows its predilection for the special regions already mentioned; but it is not until the end of the second to the fifth year, that the disease is fully developed, the papules increasing in number more and more, while the larger wheals decrease. Thenceforth, unless vigorously and persistently treated at once, it persists through life, though with marked occasional remissions, either in warm weather or cold weather, according to the special idiosyncrasy. These are the only positive factors as to its etiology which are established, but there are many to negative the various hypotheses that have been put forward to explain it.

Pathology.—The real pathology of this disease is unknown. Hebra says the clinical facts are against its being a pure neurosis, and that the papules are always primary; but the evidence of the primary eruption being an urticaria is almost conclusive, and gains acceptance in most quarters, and would go far to prove that it was a neurosis to which all the eruptive phenomena were secondary. Ehlers regards antecedent urticaria as merely a coincidence, but on the other side the recent case of Hallopeau* and Barrié may be cited.

Anatomy.—Anatomical examination† of the skin shows that there is primarily an exudation, doubtless inflammatory, of leucocytes and serum into the derma and papillary body. The fluid slowly infiltrates the rete, where the most recent observers, Kromayer‡ and van Gieson,§ agree that it forms a cyst by disintegration of the rete cells, and raises the stratum lucidum, etc., into a visible papule, the roof of the cyst gets broken, and the part heals with an atrophic pit. Leloir‖ and Tavernier thought the cyst was from the sweat duct, and not of inflammatory origin, and found no nerve changes. In old standing cases, there are secondary changes, viz., hyperplasia of the epithelial layer and pigmentation of the rete, with down-growth of the inter-papillary processes, and consequently enlarged papillæ; the corium is thickened with new connective tissue, and pigment

* *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 520.

† This has been made by Hebra, Neumann, Derby, Simon, Gay, and Kaposi, their results agreeing in the main.

‡ *Archiv für Derm. u. Syph.*, vol. xxii. (1890), p. 77. Abs. of both papers, *Brit. Jour. Derm.*, vol. ii. (1890), pp. 178, 221.

§ *N. Y. Med. Jour.*, January 3rd, 1891. A highly illustrated paper, by Taylor and van Gieson, with references.

‖ *Ann. de Derm. et de Syph.*, vol. x. (1889), p. 613.

is scattered through it; leucocytes are also abundant, especially round the blood vessels, which, as well as the lymphatics, are dilated; the sweat ducts are dilated by proliferation of their cell elements; and the hair follicles present the knob-like processes seen in lichen ruber, whilst the musculi arrectores are hypertrophied; but, in very advanced cases, from contraction of the new connective tissue, the follicles and sebaceous glands may be pressed upon and atrophied.

All these secondary changes, prurigo shares in common with other forms of chronic dermatitis, and even the primary changes are not very different from other inflammations of the papillary body.

Diagnosis.—The disease dating from infancy, with the pale red, scabbed-topped, itching papules on the extensor aspect of the limbs, the nutmeg-grater sensation they give to the touch, the excoriations, secondary eruptions, and enlarged glands, constitute a very characteristic group of symptoms. As it is the *combination* of the various lesions which makes up the diagnosis, error can arise only by making an imperfect examination.

The disease most liable to be mistaken for it is *severe chronic eczema in a xerodermatous subject,* especially as both xeroderma and prurigo date from infancy, and have a harsh, dry skin; but there are no characteristic papules nor the secondary lesions of prurigo in the eczema, which would probably affect the flexures, and all similarity would vanish upon removing it; moreover, there would be comparatively long intervals of freedom from the eczematous condition.

The knowledge of the possibility of confusion, and the exercise of ordinary care, will prevent error as regards *pruritus cutaneus* from pediculi, acari, or other cause; the same may be said of chronic urticaria, eczema, and ecthyma; they, however, are not liable to be mistaken for prurigo, but, being complications, may mask it when extensive, and be regarded as primary, instead of the secondary lesions.

Prognosis.—This depends upon the age of the patient and the duration of the disease. It is curable in early life, occasionally also in adults; as a rule there are remissions, and the patient's sufferings may be alleviated by treatment, by which the lesions are so much reduced that delusive hopes of a cure are entertained, but only to be disappointed. The cases of the greatest severity (15 per cent. Ehlers) are probably incurable from the first.

Treatment.—The indications are to relieve the itching, to remove the eruptions, both primary and secondary, and to improve the

general health. To fulfil the first two indications, external remedies must be chiefly relied upon, and applications which produce softening and removal of the uppermost layers of the cuticle are, according to Hebra, the most effectual; but internal remedies may afford some relief to the itching. Improved hygiene, especially a liberal dietary, cod-liver oil, and iron, are the most effectual means to restore and maintain the general health; but it is astonishing how much temporary benefit, both to the lesions and the comfort of the patient, is sometimes produced by merely keeping the patient in bed, and giving a liberal diet.

I have found, also, that the tincture of cannabis indica given internally, exercises a marked influence over the itching, mitigating it considerably; it must, however, be given in full doses; *e.g.*, for a child of eight or ten I begin with five minims, and increase it up to even thirty minims, three times a day, directly after meals, allowing an interval of a fortnight in its administration about every six weeks. When taken in these large doses for a long period, it may produce dulness of intellect and loss of memory, effects, however, which soon pass off when the drug is suspended. Blaschko says that antipyrin, beginning with two-grain doses, also gives great relief. Any eczema or ecthyma that may be present having been first removed by the usual means, I have found the following course of treatment effectual for the alleviation of the remaining skin troubles. The daily use for half an hour of alkaline baths ʒij to ʒiv sodæ bicarb. to 30 gallons of water at 90° F., inunction of oil of cade ʒj to ʒj of lard or vaseline twice a day; tincture of cannabis indica internally as first described, cod-liver oil and iron when indicated, and plenty of good food. I have also employed sulphide of potassium baths with benefit.

There are several modes of treatment recommended by the Vienna school, where they see a far larger number of cases than we meet with in England.

The soap treatment of Hebra is very effectual, especially where there is great infiltration of the skin. A piece of flannel moistened with warm water is dipped into the spiritus saponatus alkalinus (Lotions, F. 5), or into the fluid glycerine soap, and the parts rubbed briskly for some minutes; the latter is then washed off, and the body rubbed over with vaseline or other emollient. This process is to be repeated daily for a week. The skin should then be rubbed over with an emollient, and after an interval the treat-

ment repeated. It is unsuitable for very young children, or where there are any sores, or much eczema.

The sulphur treatment.—This may be applied in various ways and combinations—sulphide of potassium baths or sulphur fumigations, sulphur and sulphur-sand soaps, or Hebra's sulphur ointment used as follows :—Rub it well in all over after the patient has had a bath ; let him lie thus smeared, naked between blankets, and repeat the inunction night and morning for a week. The patient is then to get up, and in three days the epidermis begins to be shed, and he should then have another bath. After the course, slight cases appear quite well, severe ones much better. This plan is suitable for older patients, who can give themselves up entirely to treatment.

Vlemingkx's solution of lime and sulphur (Parasiticides, F. 11), though not quite so effectual as the ointment process, can be employed without the patient giving up his occupation. It is suitable for cases with dry papules only ; the patient, after a thorough washing with soap and water, should be well rubbed with the solution, then take a warm bath for an hour, and afterwards a cold shower-bath.

The tar treatment.—The tar bath gives good results : common tar or carbolic acid is painted on with a brush, and the patient immediately steps into a warm bath, and stays there for from three to six hours ;* the process may be repeated until it produces an intense burning sensation, or tar acne is produced. Carbolic or tar soaps or lotions, such as liquor carbonis detergens diluted, are also useful, or any of the above preparations of tar made into an ointment, and, indeed, the inunction of any form of grease gives some relief.

Naphthol treatment.—This is strongly recommended by Kaposi, as equally efficient and more pleasant than the other methods, and it is also curative for the eczema complications. A 5 per cent. ointment for adults, or a 2 per cent. for a child, is lightly rubbed in every night, and every second night the patient may be washed with naphthol-sulphur soap. This treatment is continued until the prurigo manifestations disappear, and renewed whenever the disease returns.

According to Tenneson, complete occlusion from the air for several days gives immediate relief from the incessant itching, which

* In all cases the patient should be carefully watched, as faintness may ensue from such prolonged immersion.

may last for days, weeks, or even months, in mild cases. Indiarubber clothing is the most practicable way of carrying out the plan.

Perchloride of mercury baths are recommended by Woolmer.

Which of the above methods should be chosen depends upon the severity of the disease and its complications, the age and occupation of the patient, and the time he can give up to treatment; *e.g.*, for infants and young children, alkaline baths and one of the tarry ointments, with the administration of cod-liver oil, will probably be efficient. Indications for the use of the various methods have been given under each, but it must be borne in mind, that whichever plan is selected, must be carried out vigorously and perseveringly, for the cure of the young children, and the relief of the older patients.

ECZEMA.

Deriv.—Ἐκζέω, to boil over.

Synonyms.—*Fr.*, Eczème, Eczéma; *Ger.*, Eczem, Fetter, Salzfluss, Nässende Flechte.

Definition.—An acute or chronic catarrhal inflammation, attended with severe itching, and great multiformity of lesions, viz., erythema, papules, vesicles, pustules, scales, scabs, etc., while a continuous discharge of serum or pus is generally present in some part of its course.

This is the most common of all eruptions, and constitutes at least a fourth of the cases of all kinds of cutaneous disease. It is most protean in its manifestations, often extremely persistent, while it is frequently associated with, and dependent upon, many other morbid conditions, of which it is then only an external expression. It is impossible to give a single definite and at the same time complete picture of eczema in all its phases, but all the variations are primarily referable to four kinds of elementary lesions, so that the eruption may be *vesicular*, *pustular*, *papular*, and *erythematous*, primary squamous eczema being a sub-variety of the erythematous form; and the so-called seborrhœic eczema is described under Seborrhœic dermatitis, in the section on the Diseases of the Appendages of the Skin. These may be combined in various ways and degrees of development; and may further be modified by an increase or decrease in the intensity of the inflammation; by the difference in the position and anatomy of the part attacked; or by

the inflammation attacking only a part instead of the whole structure of the skin, *e.g.*, the hair follicle or sweat gland; and lastly, by secondary changes resulting from long-continued inflammation.

The four primary forms have the following points in common: they are all acute in development, though of indefinite duration; each may come upon any part of the body, but at the same time has its favourite seat, on which it most frequently occurs and is most highly developed. Whilst on the one hand, only one form may be present, and running its own course, seem quite a distinct disease from the others; on the other, vesicles, pustules, papules, and erythema may be present all together, more or less mixed up, or on separate parts of the body, so that there can be no doubt that they are merely different expressions of the same morbid process.

Then again, instead of preserving their special characteristics, the erythematous and papular forms may develop into the vesicular, and this again into the pustular variety, or the process may stop short at any point. Thus, then, the division between these forms is not an absolute one, but is useful for description, and to gain a clear conception of a complex process.

Eczema in all forms, when not due to a local cause, is roughly symmetrical, though one side is often worse than the other.

E. Vesiculosum. This is a common,* and in one sense the most representive, form of the disease. It is seen best and most commonly where the skin is thin, *i.e.*, on the flexor aspect of the limbs, especially the flexures between the fingers, behind the ears, etc. It begins with burning and itching, soon followed by the appearance of diffuse or punctate erythema, on which minute, closely aggregated, clear vesicles develop, enlarge, perhaps coalesce, and soon rupture, either spontaneously, or from scratching, exuding a clear, plasmic fluid, which stains and stiffens linen; the part all this time being intensely red, hot, and itchy, and attended with more or less infiltration and swelling. The itching is relieved somewhat when the vesicles rupture, but the burning remains, these symptoms being always worse at night, and when fresh vesicles are forming.

* Unna, "On the Nature and Treatment of Eczema," *Brit. Jour. Derm.*, vol. ii. (1890), p. 231, says it is the least frequent; but excluding his seborrhœic form, this is not my experience.

Unlike other vesicular diseases, the rupture does not terminate the active part of the process, but there is a continuous discharge, either from fresh vesicles, or more frequently from the site of the ruptured vesicles, and whenever it is irritated by scratching into an excoriated surface. It is this weeping stage that is most frequently seen, the vesicles having generally ruptured before the patient applies for relief; or, as very frequently happens, the violent itching or burning induces corresponding rubbing or scratching, which denudes the surface sufficiently to allow of the escape of the fluid without actual vesicles being developed. Where the part is less disturbed, the discharge dries up into yellowish gummy crusts, and on removal a moist surface is exposed, on which a new crust soon re-forms.

In a favourable case, after a few days, the fluid ceases to exude, the redness diminishes, the denuded part skins over, and only some transitory redness is left; or the subsidence may be less complete, and, though the discharge ceases, there is still redness and thickening, and the part is covered with scales instead of crusts. This is **E. squamosum**, a condition which will be more particularly described presently; or, instead of the exudation diminishing, it may, with the hyperæmia and other symptoms, be increased, and the condition passes on into **E. rubrum.**

As a rule, however, none of these events take place, and the discharge may continue, though there may be some improvement, but fresh vesicles are frequently forming, either at the border of the patch or elsewhere, and so the disease may cover a larger and larger area, until nearly the whole body surface is involved. It is very rare, however, for eczema to be absolutely universal, and I have only met with two instances of it; but it is very common for it to be very extensive, and fairly earn the title of general eczema; on the other hand, it is often quite striking how the eruption limits itself to one locality, and, even when cured for a time, returns in a future attack to the same place.

It is astonishing how little the general health is affected, except in the aged, even in the most extensive cases. Pain, tension, and itching succeed each other with each fresh outbreak; the patient loses rest, is very sensitive to cold, and may experience a transitory sense of chilliness with each crop of vesicles, but he seldom has febrile or other symptoms affecting the pulse, temperature, urine, or fæces.

E. Pustulosum. *Synonym.*—Eczema impetiginodes.

Here, instead of vesicles, there are pustules due to pus cocci, and they may arise directly, or the vesicles may become pustules, which will be larger than the vesicles. It is most common in children and in those who are cachectic from any cause, especially the strumous, and is sometimes spoken of as **E. impetigo*** by the old writers, but this name is used now in a different sense. It is often seen as a folliculitis, and thus may be found on the beard and whiskers, pubes and axillæ, or scattered over the thighs; but there is less tendency to form patches, than in the vesicular form, and the folliculitis is secondary, being left behind after the general inflammation of the whole skin structure has subsided. Below the knee, however, it is frequently seen covering almost the whole limb. It is attended, usually, with less irritation and less redness and swelling than the vesicular form, and when the pustules burst and dry up, they form dark greenish crusts, which may cover a large suppurating surface. As the inflammation subsides, the secretion is stopped, the crusts dry completely, and can be easily peeled off except in a hairy part.

E. Papulosum. *Synonym.*—Lichen simplex.

This is a common and often very obstinate form. Originally it was thought to be a kind of lichen, on account of the papules which are due to the inflammation, affecting only the hair follicles or small groups of papillæ. The papules may be either discrete, scattered irregularly, or grouped and perhaps confluent; and their favourite seat is the extensor aspect of the limbs and the back. They are about the size of a pin's head, acuminate, of a bright, less frequently of a dull red colour, and may remain as papules throughout their whole course (**lichen simplex**). Often, however, with a lens a tiny cap of fluid may be observed, and when the vesicles on the top of the papules were evident and numerous the lichen was said to be inflamed, and it was called

* Besides this, other qualifying terms were used by Willan and his immediate followers, such as Impetigo sparsa for small scattered patches, I. scabida when there was unusually thick crusting, I. erysipelodes when the inflammation was deeper than usual. Melitagra was used for the honey-like crusts sometimes seen in I. figurata, and crusta lactea and porrigo larvalis were used for crusts on the face, in infantile eczema. Doubtless I. contagiosa was mixed up with these very often. All these terms had better be forgotten.

lichen agrius. When the papules were grouped in oval or roundish patches, a form not uncommon on the extensor aspect of the forearms and hands, and on the calves, it was **lichen circumscriptus.*** In this variety, the vesicles and papules often coalesce into a weeping patch, and then it looks like ordinary vesicular eczema in the discharging stage, except that it is in roundish or oval patches, more defined than those of eczema usually are, and situated on the extensor aspect of the limbs. All these names should be discarded, though there are still some who regard lichen simplex as a separate disease, even though the vesicles and papules are so frequently associated. All the papular forms of eczema are troublesome, on account of their obstinacy to treatment, either from the same papules or vesico-papules remaining for a long time, or from their dying away and reviving again and again in the most capricious and persistent manner. While burning and tingling are the usual features in vesicular, itching of the most intense character is experienced in the papular form, and blood-crusted papules are the natural consequence. When the papules are closely aggregated, they may coalesce into a scaly patch, constituting a form of E. squamosum often seen upon the limbs.

E. Erythematosum is seen in its most typical form on the face; there, it is attended with much heat and swelling, the œdema sometimes completely closing the eyes. It begins in ill-defined erythematous patches at any part, and may rapidly cover the whole surface or remain patchy; the colour is bright, or dull red, the surface is not glistening, but rough from a slight scaliness, and there is no discharge; after a time, the scales cease to form, the redness diminishes, and it gets gradually well. In other cases, the inflammation is constantly varying in intensity, now apparently getting rapidly well, and a short time after, breaking out again as badly as ever, and this may go on for weeks, months, or even years. In other cases, again, it begins to ooze, by splitting of the epidermis or with formation of vesicles, and discharges like the vesicular variety. When occurring on adjacent surfaces, as on and under the breasts or about the genitals, a muciform discharge ensues, and it is called E. intertrigo. On the other hand, the thickening and scaliness may gradually increase,

* This term has also been applied to the totally different affection called lichen circinatus or seborrhœa corporis.

and it lapses into E. squamosum. In some cases, not very infrequent, it takes the form of round or oval patches, well or ill defined at the borders, two or three inches in diameter, bi-laterally but not symmetrically scattered over a considerable area. It is then an E. circumscriptum.

E. Rubrum or **Madidans** may be developed from any of the above four varieties, though it is most frequently a sequence of the vesicular or pustular form. In it, the inflammation is of a most intense character, and while, like the others, it may come anywhere, it is most frequently observed in elderly people on the legs, the whole of which may be involved. The surface is an intense bright or dusky red, entirely denuded of the upper layers of epithelium, weeps profusely, and discharges a clear or turbid, straw yellow, glairy fluid, which may dry into large yellowish or brown crusts. These cover a great part of the limb, like a piece of armour, and when the edges are raised, can be easily detached from the copiously discharging surface beneath, from which blood also exudes with the slightest friction. The infiltration is considerable, and as cases often last for a long time, the induration is great, especially on the lower limbs, and in the flexures, where it often occurs, deep and painful fissures are frequent.

E. Squamosum. While E. rubrum is the result of increased, E. squamosum is an indication of decreased intensity of the inflammation; it also may arise from any of the four primary forms, but it is most frequently a sequel of E. erythematosum,—indeed, Hebra used the term in that sense. It is, however, better to restrict it to the sub-acute inflammations, whether primary, or secondary to one of the more acute forms, as it is produced, whenever the inflammation is of too low a grade to cause much exudation from the vessels, exciting instead hyperplasia of the rete cells. It occurs mainly as ill-defined irregular patches of variable size, in which there is redness, and when the patch is pinched up very marked thickening is felt; the red ground is more or less concealed by coarse, or fine scales, which may be abundant or scanty, but easily detachable, and never adhere into crusts like those of psoriasis.

This form is often well exemplified on the neck and limbs. In the mildest form it is not uncommon on the face as ill-defined,

slightly scaly patches, with little redness and no perceptible infiltration; this used to be called **pityriasis simplex**, and is often due to the irritation of soap; it is often associated with seborrhœa. In the more severe forms; it may be obstinate, the secondary thickening being difficult to remove.

Acute and Chronic Eczema. These terms are used in different senses. They may refer to the intensity of the inflammation, or to its duration. Eczema may run a short course with a high grade of inflammation, and then no one would dispute its right to be called "acute," but more frequently the course is a long one, consisting of a succession of acute attacks, or rather exacerbations, with but trifling secondary changes. For all practical purposes such cases are still acute, and require the treatment for an acute inflammation, but lasting for months are often called "chronic." In other cases again, secondary changes occur, as the result of long-continued inflammation, and become the most important element for the treatment; and though liable to acute exacerbations, the inflammation, as a whole, is less intense. Such cases are clearly entitled to be called "chronic."

These secondary changes are first, induration and thickening of the tissues: when the induration is the main symptom it has been called "**E. sclerosum**"; then the hardness is almost board-like, and the surface scaly. In some instances, where the thickening is also very great, a condition indistinguishable from elephantiasis arabum is produced (**E. spargosiforme**). The tissues may be enormously hypertrophied, producing deep folds at the bends of the limbs, and sometimes indolent ulcers, and the limb is so cumbersome and useless that the patient is glad to be relieved of it by amputation. Of course these are only the worst cases, and there are all gradations up to this, which may be mitigated by treatment even when they cannot be cured. In some cases, hypertrophy of the papillæ takes place, and a diffuse warty condition ensues; it may be covered with an epidermic crust, or an evil-smelling discharge may exude from between the papillæ; this is "**E. verrucosum**" and "**E. papillomatosum.**" These conditions may be combined in various proportions.

Ulceration and œdema are also occasional events, chiefly in connection with varicose veins. The extreme conditions are very exceptional, but they are not always indicative of a very long

duration. They are almost confined to the legs below the knee, as are also the modifications induced by varicose veins, such as orange, brown, or blackish discolorations from subcutaneous hæmorrhages, and a livid hue of the patches, which sometimes simulate those of lichen planus, etc.

It is common to see qualifying terms for eczema, simply indicative of their locality, such as "**eczema capitis**," "**eczema genitalium**," "**eczema palmare**," etc. They are for the most part simply convenient to express briefly the limitation of the eruption, but at the same time the clinical features are often modified by the locality. Some of these modifications will be specially referred to. In **eczema capitis et faciei**, the inflammation is much more liable to take on a pustular form, and the inflammatory products are mixed with the sebaceous secretion, become entangled in the hair, and form thick crusts of a dirty greenish-black hue, often with a foul odour. "Eczema capitis et faciei," probably from its external position, is often very obstinate, being the last parts to get well, the face later than the head, and showing a great tendency to recur, even without apparent provocation. "**Eczema genitalium**," eczema of the scrotum or vulva, begins as an E. erythematosum, and is often limited, in the case of the scrotum, to the lateral surface, on account of the natural heat and moisture aggravating the inflammation. The pruritus is so intolerable, that the patients lacerate themselves severely in seeking momentary relief by scratching, and much secondary thickening of the parts may thus be induced; also, owing to the moisture, scales and crusts do not adhere to any extent.

E. Palmare. Eczema of the palms and soles is so modified by the thickened epidermis of those parts that it is often called **psoriasis palmæ**. Vesicles are seldom formed, but there is congestion and great irregular thickening of the epidermis, and the constant motion and loss of flexibility, leads to its splitting and forming fissures, chiefly in the line of motion, which penetrate to the corium, and every movement is most painful, so that the patient is quite disabled from manual employment. This is the **E. rimosum** of McCall Anderson. The inflammation seldom begins in the centre of the palm; usually it starts at the root of the thumb or wrist, and gets into the palm subsequently. Longitudinal fissures often occur at the tips of the fingers and thumbs. The *nails* may also

be involved; they become discoloured, of a dirtyish yellow hue, are pitted, furrowed, thickened or thinned, split both vertically and into lamellæ, and produce great disfigurement. When vesicles do occur on the sides of the fingers or palms, where the skin is thick, they often do not rupture spontaneously, but remain as small, transparent, dark spots, not raised above the level of the skin, and compared to boiled sago grains. Between the fingers and on the back of the hands, where the skin is thin, they rupture readily enough. The well-known "chaps" are of similar pathology, except that there is not an eczema present, and that they are the consequence of local irritants, especially insufficient drying after being in water; but badly made soap, very hard water, handling acids, etc., are other common causes.

Children.—It is in what may be called "**infantile eczema**," that is, as it is seen under five years of age, that the most marked differences are noticeable. The chief of these is, its much greater tendency to be pustular, a tendency which it shares with most kinds of inflammation in childhood. Another point is, its being more easily excited by local irritation, and also, reflexly, through irritation of the alimentary canal. The head and face, especially behind the ears and on the cheeks, are most frequently attacked. In strumous children, and occasionally in others, subcutaneous abscesses are frequent, especially in the occipital region, and they may be very extensive. They often form rapidly and insidiously, with very little constitutional disturbance. Enlarged occipital and cervical glands are also common. In analysing over 300 cases of eczema, under 13 years of age, from the Children's Hospital at Shadwell, I found that under 5 years old there were 81 *per cent. on the head and face*, against 19 per cent. in all other positions; while from 5 to 12 the proportion was only 63 per cent. Where the eczema was in more than one region, both were counted. Adding 340 cases from Shadwell to 353 from University College Hospital, making 693 cases in all, there were 423 males to 268 females; 575 cases were under 5 years, while 176 were from 5 to 13; and of these 575, 327 were under 2 years; and of these again, 322 were under 1 year. The totals made about an equal number up to 6 months and below 12 months, and 6 years; but at University the number between 6 and 12 months predominated, while at Shadwell there

were more up to 6 months. With this exception the number at both places agrees most curiously, and shows that one-third of all cases in children begin in the first year of life; and since many of the older cases had persisted since infancy, this is an under rather than an over-estimate. In the second and third year the numbers are nearly equal—94 and 88; but after that the disease steadily declines in frequency to the sixth year, and from that age remains nearly the same up to 13.

According to Unna, the eczema capitis et faciei of children occurs in three forms—the seborrhœic, the nervous, and the tubercular. The tubercular is the form seen chiefly on the face, or in association with conjunctivitis and rhinitis, or otorrhœa in the strumous children of the poor, and in my opinion is nothing more than a dermatitis excited by contagious pus—a form, indeed, of impetigo contagiosa. If the supply of contagious pus be stopped by suitable treatment of the conjunctivitis and rhinitis, the dermatitis is readily cured by the application of diluted ammonio-chloride of mercury ointment, or similar antiseptic application.

Unna found that some of these cases improved under tuberculin injections, and thought it confirmed his opinion as to the tubercular nature of the affection; but tuberculin may modify various kinds of unstable tissue, and I have seen warts disappear after one or two injections given for lupus.

The nervous form is, he says, due to reflex irritation chiefly from dentition, and is characterised by great itching and tendency to recur. It commences on previously healthy skins on the cheeks and forehead, and radial surface of the back of the hands and wrists. With this I agree, except that dentition plays a much less important *rôle* than he states, irritation of the alimentary canal being the most frequent factor in the majority of cases, for the disease often starts long before teeth need be thought of. The lower third of the arm, and the back of the forearm are frequently involved.

In the seborrhœic form, the skin was not previously healthy, a progressive seborrhœa of the scalp having been present, perhaps from a few weeks after birth. After acquiring a moist character, it attacks the ears, forehead, cheeks, eyebrows, but not the rest of the orbits, and extends to the shoulders and upper part of the arms in usually dry, fatty foci: the fatty character is always preserved even when the surface is moist. The eruption is much less irritable than the nervous form, but more than the tubercular,

and has a constant tendency to generalise on the genitals, back, and lower limbs.

While this account is clinically a true description of some cases, I do not think there is such a sharp line of demarcation to be drawn between the nervous and the seborrhœic forms, either as regards pathology, course, or treatment, as Unna does ; indeed, he admits that it is not always possible to make the distinction, especially if not seen at the early stage, and his statements as regard treatment are only of limited application, viz., that ichthyol in the gelatine zinc paste must be prescribed for the nervous form, while it is useless in the seborrhœic form, in which sulphur or resorcin pomades are the applications indicated.

The elderly.—Chronic squamous patches, with great thickening, are frequent about the lower part of the legs. This arises partly from varicose veins, partly from the frequency of development of the gouty diathesis, the ankles being a favourite position for gouty eczema.

In very old people also, eczema is one of the signs of decay or of defective elimination, and when acute, may leave freckle-like pigmentation behind it. Often it is very mild, being only slightly rough and red, with tendency to superficial splitting of the epidermis, and general intense itching. A condition intermediate between psoriasis and eczema occurs sometimes on the hands of elderly women. The edges of the eruption are well defined, and the patches are dry, scaly, and intensely red and itching ; but when there has been any eruption elsewhere, it has been more distinctly eczematous, and is therefore placed here.

Etiology.—Men * and women are alike subject to eczema from the first to the last week of existence. At the same time it is more common in the infantile period, and in the decades from twenty to thirty. Heredity, although often put forward, has but slight claims to be considered as a cause.

The causes of eczema are external and internal. The *external* causes are almost as numerous as the number of agents that will irritate the skin ; it will thus be only necessary to give examples of different classes of irritants, as a complete list of them would

* Hebra gives the frequency of males to females as one to two, but this probably is due to special peculiarities in his clinic. For interesting statistics on eczema see Bulkley's monograph, chapter ii. In children, as I have shown, males predominate as five to three.

be almost interminable. It is true that the dermatitis produced by many of these irritants has often characteristics different from ordinary eczema; on the other hand, the inflammation at the part irritated may be indistinguishable from an eczema in the first instance, or may become so at a later period. Moreover, the local irritation may be the starting-point for a widespread eczema, even in regions far away from the original inflammation.

The stronger irritants are always capable of exciting inflammation in the skin whenever it is exposed sufficiently long to their influence. Rhus toxicodendron, tartar emetic, croton oil, turpentine, etc., may be cited as examples. The weaker irritants require a predisposition on the part of the individual, either permanent, from the skin being especially sensitive, or temporary, from some want of general vigour from various causes, the same irritant being ineffective when the individual's vital powers are at their best. To some of these eczemas, names have been most unnecessarily given, the irritant differing, but the eczema being much the same, except where the intensity of the irritation differs; E. solare, E. mercuriale, and E. sulphure are examples of these superfluous designations.

All irritants may be divided into chemical, thermal, and mechanical. The *chemical* irritants include a large number that are used medicinally, such as the whole class of counter-irritants, sulphur and mercurial inunction, dilute acids, dyes, soaps that contain an excess of alkali, etc. The *thermal* irritants are the direct rays of the sun (E. solare) and artificial heat, which often produces eczema in those exposed to it, such as stokers, blacksmiths, and cooks.

Cold has a strong influence, and eczema is more common and severe in winter than in summer. It is especially injurious when combined with wet, and when the parts exposed are allowed to dry spontaneously, as exemplified in washerwomen and barmaids; but the excessive use of water in the form of baths, as in hydropathy, mineral spring cures, etc., acts similarly.

Of cold, *per se*, the winter eczema of the ichthyotic may be specially mentioned, though it is by no means limited to them.

Mechanical irritants, such as handling dry powders, scratching in pruritic eruptions—parasitic or otherwise—the friction of articles of clothing, pressure, etc.

Many of these might be classed as "trade eczemas," and are limited for the most part to the parts exposed to the irritant,

though it may spread from that as a starting-point, and moreover the inflammation does not always subside at once after the removal of the irritation. Their nature was formerly misunderstood, and so we meet with such expressions as "baker's, grocer's, and bricklayer's itch."

With regard to the *internal* causes, there has been an immense amount of hypothesis, often reposing on a very slender foundation. The older French authors * laid great stress upon what they called the dartrous diathesis, to which they refer eczema and several other cutaneous diseases, but with the exception of Mr. Jonathan Hutchinson these views now meet with but little acceptance in, or out of France, and need not be discussed at any length. Few would deny that there are certain skins in which eczema is much more easily excited than in others. T. Fox thought that the eczematous skin was irritable and dry; that dryness favours the occurrence of eczema, is well exemplified in the case of ichthyotic patients, but I would hesitate to say that the skin excretions are deficient in the majority of eczematous patients; indeed, eczema is common in association with hyperidrosis. There is one local condition that greatly favours the occurrence of eczema in the neighbourhood, *e.g.*, varicose veins, whether of the leg or rectum. Any part being chronically congested, is half-way towards inflammation; just as in emphysema, the train is always laid for bronchitis, so it is with varicose veins and eczema,—a slight local irritation or vital depression, and the inflammation is lighted up.

The eczema patient is seldom in a state of well-being at the time of the supervention of eczema. Instead of the clear, ruddy complexion, so often seen in psoriasis, a heavy expression, and pasty, or even earthy complexion, is the rule; the patient generally complains of something, sometimes only of "being out of sorts," has lost energy, or is no longer up to his work. One of the most common factors is an exhausted nervous system (the neurasthenia of American writers), whether from worry, anxiety, overwork, either of mind or body, or from disease; indeed, eczema is almost like a parasite in the way it seizes upon and flourishes on the weak or vitally depressed, independently of the cause of the depression.

* See Bazin in *Affect. Cutan. Arthrit. et Dartreuses*, 2nd ed., p. 47 *et seq.* (Paris: 1868), and Hutchinson's *Lectures on Rare Diseases of the Skin.*

Foremost among all internal disorders I would place derangement of the alimentary canal; the complex condition known as dyspepsia is very frequently present, and the bowels are very often disordered, either from constipation or from diarrhœa or deficient bile. This may, however, be simply a concomitant, an acute eczema being often associated with pale motions, furred tongue, and urine loaded with lithates, and as the two often come on simultaneously, it is reasonable to suppose that there is a catarrh both of the alimentary canal and of the skin.

Where lithæmia, as described by Murchison, is frequently present, such as in patients of the gouty diathesis, there is little doubt that there is a causative relationship between it and eczema. Whilst fully admitting that the gouty state strongly predisposes to eczema, I believe that there is much exaggeration of the frequency of gouty eczema, and that when a middle-aged eczema patient is told that he is suffering from suppressed gout or perverted gout, it is too often only a refuge for the distressed diagnostician. Of course, if the view that all dyspepsia is an inchoate gouty state be accepted, my objection vanishes. How these various disorders produce the eczema is open to difference of opinion; Wilson and others include them under assimilative debility, Tilbury Fox regarded them as instances of retained excreta, which in the blood act as irritants to the tissues. For my own part, I think that they are all instances of irritation of the alimentary canal, which reflexly acts upon the nerve centres, and produces dilatation of the capillaries of the region affected. In infantile eczema, irritation of the alimentary canal is even more common as a cause of eczema than in older people. The imperfect feeding of which infants are too often the victims is a fertile cause of the skin-troubles, and is much more often the *fons et origo mali*, than teething, which for infantile diseases, often takes the place of "suppressed gout" of the middle-aged; at the same time I cannot go so far as Hebra, who denies that it has anything to do with the matter. I think it often aggravates a pre-existing eczema, and there are other grounds for believing that irritation of the fifth nerve will produce eczema, such as Cavafy's * case, in which eczema followed neuralgia of the

* *Brit. Med. Jour.*, July 24th, 1880. A case of eczema in the course of the small sciatic and short saphenous nerves is recorded by Shearar, *Glas. Med. Jour.*, February 1885, with photograph, but I am not quite sure from the description that it was really an eczema.

second branch of the fifth, and was limited to its area of distribution. Rickets also is often put forward as a cause of eczema; I believe it is so indirectly in some cases, especially as catarrh of the gastro-intestinal tract is seldom absent in rickets, while the child's powers are much depressed; how far they are dependent upon each other, or upon a common cause, is open to discussion. With regard to the "strumous state," it is an outcome of lowered vitality, and as such is a predisposing cause of eczema; it exercises a modifying influence also upon the kind of inflammation, favouring suppuration, so that it is a cause of pustular eczema. This is the nutritive debility of Wilson.

Another class of cases in which eczema appears to be a reflex neurosis is, in uterine disorders, which even Hebra admits as an important factor. He and others have known women in whom eczema of the hands was always present in pregnancy, and constituted the earliest reliable sign. The presence of uterine tumours, the climacteric period, the termination of lactation, congestion and subinvolution of the uterus, etc., are further examples of uterine derangements as causes of eczema, which is also not infrequent in chlorotic girls.

Bulkley considers eczema and asthma to be so frequently associated, that he regards asthma, in many cases, as a sort of eczema of the pulmonary mucous membranes. I cannot say that I have found the association frequently, but that a chill will excite a simultaneous inflammation of the skin and mucous membranes is readily intelligible. Liveing considers glycosuria and slight albuminuria to be common in chronic eczema of people past middle age. Granular kidney I have certainly found in a fair number, but sugar in my experience is rare; however, the following case is an example:—A man æt. sixty, who had been subject to eczema, but was in perfect health at the time when he bathed in the sea on a cold day, was unwell all the rest of the day, and on the following morning had spasmodic asthma and bronchitis, and in the evening, eczema broke out all over the head and face. His motions were very pale, and he had a small quantity of sugar in the urine, without polyuria, but there was no evidence of gout. In a previous attack of general eczema this man had had white motions for some time.

When an eczema has once been excited, it does not subside as soon as the cause is removed, and the disease will go on

indefinitely, unless judiciously and perseveringly treated. It is no uncommon history to find a child in his teens who has had eczema more or less from early infancy, and in whom no defect in health to account for it, can be discovered.

In adults, also, we meet with cases where after correcting every defect discoverable, and every function appears to be duly performed, yet the eczema persists. Often the disease appears to be subsiding under local and other treatment, when the end of the free interval arises, and all one's labour is undone in a single night. That such cases are frequently dependent on a nervous defect, the results of a treatment to be presently discussed strongly corroborate. Hebra placed "faulty innervation," without suggesting its nature, in the highest position as a cause of eczema; this I should endorse, and suggest that the chief factor is a reflex irritation of the nervous centres, producing a dilatation of the capillaries in different regions of the skin, possibly through an inhibitory influence over the vaso-motor centre. In some cases, this irritation is from a distant organ, like the intestinal canal or uterus; in others, it is from the skin itself. All these internal causes Unna disposes of by saying, that their presence makes the skin a better nutritive basis for the hypothetical parasite of eczema, but this makes it equally desirable to remove them if possible.

Pathology.—Eczema is a catarrhal inflammation of the skin, analogous to that of mucous membranes. That, when not due to a local irritant, it is a tropho-neurosis, either central or peripheral, has been advocated by Hebra, Tilbury Fox, Schwimmer, etc., and Marcacci* in a fatal case of universal eczema found changes in the sympathetic. This view I have upheld in the discussion of its etiology, and it therefore need not be further alluded to.

Unna holds that eczema is a parasitic disease due to some micrococcus not yet determined, and adduces the success of antiseptic local treatment as a proof of this. Whilst fully admitting the importance of antisepticism in eczema, and indeed in all inflammations of the skin where the epidermis is disturbed, the hypothesis of parasites being the sole cause of eczema (the so-called seborrhœic eczema excepted) creates, in my opinion, more difficulties than it solves; for amongst many other objections, we must suppose that the parasite is absorbed into the circulation and germinates as in the exanthemata, or how else are we to account for the frequent

* *Giornale italiano delle Malattie ren. e. d. pelle*, June number, 1878.

sudden outbreak of eczema with a symmetrical distribution, in definite vaso-motor regions, such as those of the xeroderma pigmentosum area, the acne rosacea area, etc.? My own view is this: that, while a limited number of local eczemas are parasitic, in most the dermatitis, however caused, only opens the door to parasites whose presence keeps up local irritation, and that their destruction is an important step in the restoration of the skin *ad integrum*. Seborrhœic dermatitis is on a different footing, and I admit its local and parasitic nature unreservedly.* That eczematous inflammation becomes pustular from cocci I have already stated, and that partial or complete cure results from their destruction. It will thus be seen that we agree in practice while we differ in theory.

Anatomy.—This has been investigated by Simon, Hebra, Wedl, Rindfleisch, Kaposi, Neumann, Biesiadecki, Robinson of New York, and myself.

In papular eczema, the inflammation is in circumscribed portions of the skin, and Robinson says is primarily confined to the follicles, especially the hair follicles, while in the other forms, it is more or less diffuse. In acute eczema, the changes are chiefly and primarily in the papillary layer, afterwards in the epidermis.

The papillæ are swollen in all directions, the vesicles dilated, the connective tissue corpuscles increased in size and number, and the fibrous bundles swollen by imbibition and compressed; these changes giving strong evidence of serous exudation. Biesiadecki lays stress chiefly on connective tissue cell proliferation as the source of the cell infiltration of the papillary layer and rete, but they are now admitted to be chiefly emigrant cells. Spindle cells from this source make their way into the rete, and form a close network between the cells, the meshes of which are filled with the rete cells, this network extending sometimes right up to the horny layer.

The rete cells themselves are elongated and almost thread-like, where the vesicles are large, and the vesicles are formed in the upper part of the rete or just beneath the horny layer, by the serum from the vessels making its way between the cells, and raising up the horny layer. Besides the serum, they contain loose rete cells, and some of these swell from imbibition, rupture, and impart the gummy character to the vesicular contents (Robinson). In the papule, the fluid exudation is slight; in the pustule, it is abundant, and there is more cell emigration and proliferation. and therefore more infiltration of the corium and epidermis.

Chronic Eczema Rubrum.—Robinson says the previously described changes in the corium are here more marked and deeper, and the rete in

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* On the nature and treatment of eczema, a good and suggestive exposition of the parasitic theory, but he somewhat misrepresents my views (*Brit. Jour. Derm.*, vol. ii. [1890], 231).

the lowest layers, is so altered that the lower border is badly defined from the corium. The rete cells are separated and mixed with round cells from the vessels, and with proliferated rete cells, while the upper border is very irregular, from the loss of the horny layer, of which, at most, there are only fragments consisting of nucleated cells. In chronic eczema squamosum, there is proliferation and desquamation of the horny layer, while the rete is unchanged, the corium and papillæ are infiltrated with round cells, the vessels are dilated, and in short, there are all the usual changes of a less active inflammation.

The longer the duration of the process, the more marked are the secondary changes, as exemplified in figs. 11 and 12, representing E. palmare. The papillæ are so much larger; the cell infiltration of the corium is more marked, and goes deeper, Neumann and myself having found it even between the fat cells: he also found, not only the blood, but even the lymph-vessel loops, elongated and dilated at the end. This enlargement of the papillæ may go on to a papillomatous extent, as before described in the clinical history; of this Robinson * gives a figure. When the lymphatic flow is impeded the elephantiasic condition is induced. On the other hand, Rindfleisch † has described, in some cases, great development of connective tissue, obliteration of vessels, and flattening of papillæ.

Diagnosis.—The diagnosis of eczema may be very easy, or very difficult. It is easy, when any one of the four primary forms is in a typical condition; or given the presence, or the distinct history of the presence, of a continuous discharge which stains and stiffens linen, whether serous or pustular, and the diagnosis is made; for although there are a large number of eruptions in which there are vesicles or pustules, they either dry up without rupturing, or do so as soon as their contents have been evacuated. On the other hand, the absence of discharge does not necessarily imply the absence of eczema, for, like pleurisy, it may be with or without free effusion of serum.

The vesicular form of eczema may be mistaken for scabies, herpes, and, when general and weeping, for pemphigus foliaceus; the pustular form, for impetigo contagiosa, tinea favosa of the scalp, sycosis menti, and pustular syphilis of the scalp; the papular, for lichen ruber, papular urticaria, and papular syphilides; the erythematous, for E. simplex and erysipelas; E. rubrum of the legs, may also be mistaken for erysipelas; E. squamosum, for psoriasis and tinea circinata, and when on the palm for the palmar syphilide.

Scabies v. *Eczema.*—These two diseases very closely resemble

* Robinson, p. 318.

† Rindfleisch, "Path. Histology," *Syd. Soc. Trans.*, vol. i., p. 349.

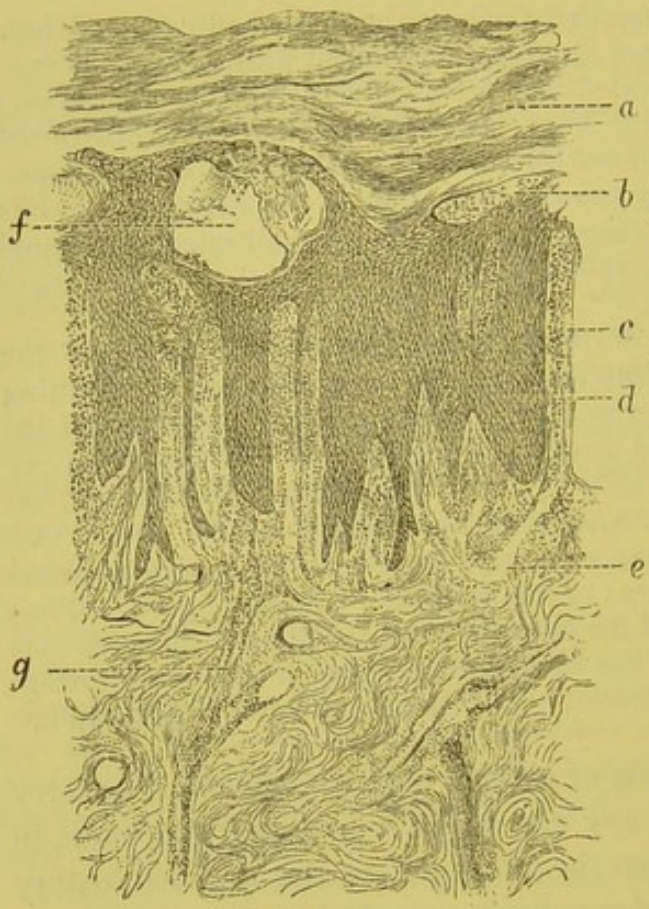

Fig 11.

CHRONIC ECZEMA FROM THE CENTRE OF THE PALM. × 50.

Fig. 11.—Superficial portion.

a. Horny layer greatly thickened.

b. Commencing vesicle.

c. Round cell effusion into papilla.

d. Enormously thickened rete Malpighii. The inter-papillary portions are very much elongated, producing corresponding enlargement of the papillæ as at *c.*

e. Dilated papillary vessels.

f. Vesicle in the rete, in the course of a sweat duct.

g. Sweat duct with round cell infiltration in and about it, throughout its course. In other parts, the cell effusion is almost limited to the papillary layer.

Fig. 12.

Fig. 12.—Deep portion corresponding with Fig. 11. × 50.

a. Continuation of sweat duct *g* in Fig. 11.

b b. Sweat coil.

c c. Abundant cell effusion in and around sweat coil.

d. Fat with scanty cell effusion round the fat cells.

each other, and often give rise to great difficulty in diagnosis; and this is not surprising, since nearly all the lesions of scabies are individually of an eczematous character.

Both itch much at night, and both have vesicles, pustules, crusts, and scales. Where there are well-marked burrows from which an acarus can be picked out, or where there is evidence of contagion, there is of course no difficulty, but in an ill-marked case, especially when thrown off one's guard by the patient being obviously a clean person, or of the better classes, mistakes often arise.

In such cases as those where the burrows are destroyed, or obscured by vigorous scratching, or from the nature of the employment, as in bricklayers, washerwomen, etc., the two points which afford most assistance are the *positions* and *scattered* character of the eruption. Scabies particularly affects the hands, especially between the fingers (an eczema position also), the flexure of the wrists, the axillæ, the pubic region, especially the penis, and inner sides of the thighs in adults, while in infants the buttocks, feet, and hands are the favourite positions. If an eruption is scattered irregularly in any of these positions, it is of itself a strong presumption in favour of scabies. Eczema also comes in these situations, but the lesions are always more or less grouped or patchy. A pustular eruption on the hands or feet of an infant is nine times out of ten due to scabies.

Where the evidence for either is finely balanced, the effect of the treatment for scabies will decide the matter in a week.

Pustular Syphilides of the scalp are often mistaken for pustular eczema. There is here superficial ulceration; and the loss of substance, either past or present (and scars should always be looked for), is decisive. The crusts may require to be removed before a diagnosis can be made, and this is always the safest course to pursue. The offensive odour of the pustular syphilide should excite suspicion, and further, the lesions are generally more circumscribed than those of eczema.

Sycosis Menti bears a close resemblance to the later stage of eczema of the beard and whiskers. At the commencement, in eczema, there is inflammation, and perhaps vesicles, between the hairs, and the eruption nearly always extends to the neighbouring

hairless situations; but as time goes on, this may get well before the hairy part, and the eczema clearing up between the hairs, there is only a pustular folliculitis left, hardly distinguishable from sycosis. At a later stage, the two conditions are practically identical, the whole skin being infiltrated, of a deep red colour, with crops of follicular pustules from time to time. The treatment is also identical. Often, however, the eczema inflammation can be shown to be more superficial at first. On extracting the hairs, some of them will be found to be infiltrated at the root, only a short distance down, while in sycosis the whole root-sheath is always swollen.

Tinea Favosa of the scalp is likely to be mistaken for eczema, only when its possible existence is forgotten for the moment. The crusts are a more decided yellow, and often powdery; some at least will be cup-shaped, and there may be atrophic scarring. If there is still doubt, the microscope would be decisive.

Herpes Zoster will seldom give much trouble; the definite arrangement of the patches in the course of a nerve will be quite sufficient; also the vesicles being much larger, except at the commencement, and the way in which they dry up without discharging, or at least without continuous discharge, constitute distinguishing features. This last symptom is a distinction between eczema and the other forms of herpes, viz., H. facialis and genitalis, which are more like eczema than zoster is, the vesicles of H. genitalis being very small. Their position, the circumstances under which they occur, and their short course, will be sufficient to prevent error.

Pemphigus Foliaceus is very like a general weeping eczema; the diagnosis is given under pemphigus.

Impetigo Contagiosa, when due to pediculi capitis, its most common cause, is very like pustular eczema of the scalp. The localisation is an important point; the eruption is almost limited to the occipital region; at the most, a few isolated scabbed spots exist in the other parts of the head; eczema is scarcely ever limited in this way, even in isolated spots; nits would also be discoverable, and the effect of treatment would be conclusive; impetigo contagiosa is curable in a week or two, while eczema nearly always takes longer. When impetigo contagiosa is on the face,

the fact that there are always isolated lesions away from the main patch is sufficient.

Lichen Ruber and *Lichen Planus.*—See those diseases.

Papular Urticaria.—Eczema lesions are not infrequently mixed up with those of urticaria. In the papular form of urticaria, the lesions are never grouped, as in eczema; they are rather larger, not so hyperæmic, and at least, the *history* of wheals is obtainable. When the scab-topped papules are chiefly distributed on the loins of a child, wheals should be always inquired for.

Follicular Syphilides v. *Eczema Papulosum.*—These syphilides always occur in the early part of the secondary period,—that is, within about six months of infection,—and other syphilitic lesions are nearly always present. In the follicular syphilide, the papules are in groups of three or four, which is very characteristic; they are also larger, a browner red, and do not itch.

Erythema Simplex is not easily mistaken for eczema. The eruption is not in the least scaly, seldom itches, there is no inflammatory œdema, and all the other characters of eczema are wanting.

Erysipelas v. *E. Erythematosum.*—The latter is often mistaken for erysipelas on account of the redness and œdema, but there are no constitutional symptoms as in erysipelas; it does not begin at a special part like the orbit, its borders are never defined, the surface is rough from the first, while in erysipelas it is shining, smooth, and tender, and desquamation only appears after the departure of the inflammation. In E. rubrum of the legs, there is always profuse weeping, and the chronic course of the eruption ought to prevent mistakes.

Psoriasis v. *Eczema.*—It is only when eczema is in dry, scaly, circumscribed patches, or when psoriasis is unusually hyperæmic, that mistakes are liable to occur. The diagnosis is given under Psoriasis.

Tinea Circinata.—No mistake can occur when the tinea is present in its typical form of discrete circles made up of papules with a clear centre; but when there is a uniformly scaly patch, irregular in outline, it may be impossible, except with the microscope, to

distinguish between them. Often, however, there is ringworm in the scalp, or a more typical patch elsewhere, or a history of contagion to help out the diagnosis. Moreover, eczema is generally symmetrical to some extent, and the border less defined. A sharply defined border to a solitary scaly patch, should excite suspicion of its not being eczema.

Prognosis.—Eczema more frequently runs a chronic than an acute course, and, if left to itself, may persist indefinitely. It is always amenable to a persevering, judicious treatment, though when there are extensive secondary changes these may not always be removable.

The elements for prognosis to be considered are:—how far the eczema depends on some removable or irremovable defect in the general health, or other condition, *e.g.*, varicose veins; the form of the disease; the mode of progress; the history of previous attacks, if any; the duration and intensity of the inflammation; the position of the eruption; and the amount and character of the secondary changes.

Thus, a gouty eczema in an old person, or where elimination is defective, as in granular kidney, is extremely likely to recur, or where there is a chronic cause of worry or anxiety, or other points in the external conditions are bad, the prognosis is unfavourable for the removal of the eruption. Papular is usually more obstinate, than acute vesicular eczema. When every few days an outbreak occurs without apparent cause, when the eruption is of long standing, and elephantiasis, papillary hypertrophy, or great induration has set in, or when it is on the scrotum, hairy parts of the face, or palms, the prognosis is more or less unfavourable, at least for a time, though there are few indeed, which do not yield at last.

Treatment.—The treatment of eczema is very important, and its mastery will give the key to the treatment of three-fourths of the inflammatory diseases of the skin. The first point to investigate in all cases, is the cause of the eczema; *e.g.*, if it is limited to the hands, a local cause, especially such as would be connected with the occupation of the patient, would naturally suggest itself. Failing this, investigation should be made into the general health, the habits, and surroundings of the patient, and persevering attempts made to remove, modify, or neutralise any injurious influences, the great aim being to remove or guard against depressing conditions and all sources of irritation, whether internal or external.

With regard to these points, it is impossible to do more than give a few hints as to the lines on which to proceed, and which are likely to be beneficial in the majority of cases. There are no specifics for eczema, and as regards general treatment, the soundest practitioner for disease in all forms, will be the most successful. In all cases, the condition of the alimentary canal must meet with our first attention. Of the derangements there, constipation is the most common and most injurious, and success can scarcely be hoped for unless that is overcome; when chronic, but slight, the compound sulphur lozenges, or if obstinate, the aloes, nux vomica, and belladonna pill (Pills, F. 1) taken for a long period, are most useful, coupled with all the well-known rules for meeting that condition. As temporary adjuncts, the compound liquorice powder, or the liquid extract of cascara sagrada, may be given, while the aperient mineral waters, such as Carlsbad, Hunyadi Janos, Æsculap, Friedrichshall, Püllna, etc., are often required two or three times a week; these waters are especially useful where there is passive congestion of the liver. For infants, equal parts of the infusion of gentian and senna, a drachm to be taken three times a day, to which, in obstinate cases, two or three drops of tincture of belladonna and tincture of podophyllin may be added, is a good formula, but it is disagreeable for a child to take. Liquid extract of cascara ℥ij to ℥v, tincture of belladonna ℥iij, and compound infusion of orange ʒij, is better. Where there is dyspepsia, alkalies and bitters, bicarbonate of soda for the majority and of potash for the gouty, is the usual treatment required. Bismuth is useful with pyrosis or irritable tongue, and a small dose of strychnia or tincture of nux vomica in flatulent or atonic dyspepsia.

In children, in whom catarrh of the bowels is so common, sodæ bicarbon. gr. 5, sp. chloroformi ℥j, aquæ anethi dil. ʒj, for a child a year old, answers well in many cases where the motions are loose, offensive, and slimy, and frequently a grain of hydrarg. c. cret. three times a week may supplement the mixture. Of course, these are only given as examples of treatment for the common run of cases. For all patients, the diet should be carefully regulated; fermentible articles of diet should be prohibited, sugar should be taken in moderate quantities or not at all, especially with hot fluids, highly seasoned and made dishes avoided, and a dietary laid down, plain and nutritious, but with sufficient variety not to pall upon the appetite. Salt meats are only contra-indicated because, as a rule, they

are difficult of digestion and less nutritious, weight for weight, than fresh meat. The salt itself is not injurious in moderate quantity.

Alcohol must always be taken sparingly, as, except in very moderate quantities, it dilates the vessels of the skin, and therefore increases the blood in the too congested skin, and aggravates the itching; beer and the stronger wines are seldom admissible; sound clarets, hocks, and plain spirits freely diluted are the least objectionable, but in a large number of cases, alcohol is better avoided altogether. In gouty cases, the regimen and medicinal treatment for that condition must be adopted, taking care to ensure a reduction of the amount of nitrogenous food on the one hand, and active exercise and means for promoting increased oxidation, on the other. A course of alkalies, with saline aperients occasionally, is what is usually indicated; but colchicum need only be given when there is high pulse tension and other indications of a gouty outbreak. For the want of tone and general debility, so often exhibited by eczema patients, the mineral acids and nux vomica, or quinine, or where there is anæmia, iron with plenty of outdoor exercise short of fatigue, are the measures generally demanded, and cod-liver oil is often highly beneficial.

In children, especially if rickety or strumous, if the bowels and diet have been regulated, iron, such as the syrup of the iodide, the ammonio-citrate, or Parrish's food, with cod-liver oil and general hygiene, are the means best suited to combat such conditions. In all obstinate cases in adults, the urine should be examined for albumen, sugar, and an excess of lithates or phosphates; indeed, it should be done as a matter of routine. In short, until every function is duly performed and the patient's health has attained to the highest point of which his organisation and circumstances render him capable, the practitioner should not rest satisfied.

Speaking generally, in an acute case seen early, saline aperients are good treatment at first, and later on tonics suited to the patient's special conditions; while in cases of long standing, diuretics take a high place in relieving the skin troubles.

But there are cases in which no particular departure from health can be discovered, or where such departure has been rectified, and yet the eczema remains uncured, owing to fresh attacks at short intervals; and then it is usual to try empirical remedies. Arsenic has a high reputation in this connection; indeed, it is but too common a practice to resort to it, whenever there is the least hitch

in the progress of the case, but, in my experience, it is a most disappointing drug in eczema. I do not doubt that a certain number of cases get well under arsenic, when it is combined with local treatment, but whether as *post* or *propter hoc*, I am not prepared to say; but it has nearly always failed in the only cases in which I have wanted its assistance, viz., those in which what I venture to call the rational treatment has previously been unsuccessful, probably not more than 3 per cent. in all cases.

Malcolm Morris strongly advocates vinum antim. tart. in small doses, about ηv three times a day. It is an old treatment revived, and I have certainly found it serviceable, but in a more limited number of cases than he appears to have done. It acts most favourably in acute cases, in a fairly robust individual; but if given to a debilitated subject, or in an otherwise unsuitable case, it will not only aggravate the eczema already present, but will excite it in fresh places. This I have seen several times, and regard it therefore as a drug powerful for good or evil, and consequently to be used only in carefully selected cases.

Another drug which I have found beneficial in uncomplicated cases, where there is no irritation of the alimentary canal or urinary organs, is spirit of turpentine. In many obstinate cases, it has acted most satisfactorily, even when no local treatment has been employed. There is rather a prejudice against it, on account of its irritating effect, in some cases, on the urinary passages. But if given with proper precautions, such irritation will be rarely seen, and will never be very great. It should be made into an emulsion with mucilage, and given three times a day, after meals. The dose at first should not exceed ten minims, and the last dose should be taken not later than six p.m., as discomfort on micturition in the morning, sometimes follows a late dose. The quantity of urine passed is often diminished at first, with copious deposit of lithates; therefore diluents, such as barley water, should be drunk freely, not less than a quart a day. This is very important, and the medicine should not be commenced until the barley water is ready. Unless the patient is very intolerant, which is not often the case, the dose may be increased by five minims at a time up to twenty or thirty minims, and but few complain seriously of the taste, which can be masked by various flavouring agents, notably essence of lemon.

But there are a few cases where the Pharmacopœia has been ransacked in vain, for every few days exacerbations set in, and undo over and over again, the good effect of the local treatment. In such cases, I endeavoured to get at the vaso-motor centres of the part by applying counter-irritation over them. This proved more successful than I had expected, and the result was too immediate to doubt the connection between cause and effect. In the upper half of the body it was used to the nape of the neck; in the lower, over the lumbar enlargement, *i.e.*, the last dorsal and first lumbar vertebræ. Sometimes dry heat, in others a strip of mustard leaf, was used, or the liquor epispasticus was painted on. The nocturnal exacerbations were either stopped or greatly mitigated, and by repetition, in some cases, a complete cure was effected, after the eruption had lasted for years. No eczema was ever excited in the neighbourhood of the counter-irritant, even after severe blistering. The relief of the itching was so entire and immediate, that the patient, after the first time, welcomed the repetition of the treatment. Icebags to the spine have also been suggested for these cases.

Local treatment.—This is as important as the general treatment. Indeed, Hebra and the Vienna school place it first, and rely almost exclusively upon it. The judicious combination of the two finds most favour in English eyes, and appears to be at once the most rational, and rapidly efficacious.

The number of local remedies and plans of treatment for eczema is legion, and testifies to the troublesome and obstinate character of the complaint in many instances. I propose to limit myself either to those methods of treatment which have been most successful in my experience, or on which many authors of repute have placed their *imprimatur*.

Except where the inflammation has been excited by parasites, the local treatment is independent of the cause. The points to consider are, the character and intensity of the inflammation, its position, and the secondary changes which have ensued.

There are certain things which are always to be avoided. Eczema should never be washed with plain water, as it is most irritating whenever there is any active inflammation, and will sometimes, if persisted in, render success impossible. Distilled water, pure water with scarcely any salts, such as that of Glasgow and Dublin, and carefully collected rain water, are less injurious.

The inflamed skin should always be protected from the air, and when it is on the face, the patient should not go out in an east or north-east wind in this country, and should not be sent to the seaside as long as the eczema is out anywhere or has been out very recently. There are some exceptions to this. Thus, in strumous subjects, or some others who require bracing very much, the benefit to the general health more than counterbalances the local injurious effect, though even such patients would do better in an inland bracing climate. The first positive procedure in all cases should be, to remove the crusts and scales completely, so that the remedy may be brought into absolute contact with the diseased surface. This may be done in various ways. The most common plan is to poultice the part for three or four hours. It answers well enough with care, but is so often overdone, and is then so injurious, that it is safer to avoid it altogether. Plain almond or olive oil applied constantly on strips of flannel, until the crusts and scales can be softened enough to enable them to be readily detached, is the plan I prefer. Another good plan is to soak them off with decoction of marshmallow or thin gruel, to which ʒij of bicarbonate of soda to a quart are added. Some recommend indiarubber envelopes, but the parts must then, immediately after their removal, be wrapped in ointment, or the skin will crack as it dries. Where the crusts or scales are moderate in amount, the ointment selected may be applied at once, removing fresh scales night and morning, before the fresh dressing. When all the crusts are removed, the inflamed part is ready for the special medication.

The medicaments may be prescribed in the form of desiccant powders, lotions, liniments, pastes (hard and soft), and ointments. The drugs employed have soothing, astringent, antiseptic, stimulating, caustic, or keratolytic properties, and in selecting the remedy deemed appropriate, the points to consider are, the character and intensity of the inflammation, especially as to the quantity or absence of discharge and the position and secondary changes which have ensued, for, except where the inflammation is excited by parasites, the local treatment is independent of the cause. Speaking generally, in acute or subacute eczema (as regards degree, not duration) the applications should be continuous, while in the drier and more chronic forms they are intermittent. The objects are to secure equality of temperature, and protection from the

air and the injurious organisms it may contain, *i.e.*, to keep the part antiseptic; to constringe the dilated vessels, and allow the excoriated part to heal under the dressing; or in the chronic forms, to remove the surface layers of thickened epidermis and sterilise the layers beneath. The treatment for special positions will be considered separately. In all cases, when practicable, the patient's convenience should be consulted, as he will often otherwise not carry out his instructions faithfully; besides, for the poor to give up working, is often to give up eating.

As a rule, lotions, unless they require to be applied constantly, are more convenient than ointments. Lotions or dusting powders are generally preferable where the discharge is very profuse, ointments may be used where the discharge is moderate, soft pastes where the discharge is slight and hard pastes are suitable for dry areas. When a large moist surface has to be continuously enveloped, liniments find their place (see also p. 45).

As long as there is great hyperæmia and discharge, soothing remedies are safer, more grateful to the patient, never do harm, and are generally the most efficacious; non-irritating antiseptics may be usefully added. They act, too, chiefly by protecting the part from the air, etc.

On the other hand, sometimes bolder measures, especially tar in some form, may effect a rapid cure in a comparatively acute case; but it is always risky in the early stage—may aggravate the inflammation, and thus destroy the patient's confidence at the commencement. It is a safe rule, never to use strong remedies when the patient first comes under treatment, and until some knowledge of what his skin will bear has been gained. Stimulating, caustic, or keratolytic treatment is required in chronic, indolent, scaly patches, or where there is thickening and great itching.

The soothing remedies are mere emollients, such as marsh-mallow decoction or thin gruel with about ʒij of bicarbonate or biborate of soda to a quart. These make good washes where cleansing is necessary. Other emollients are olive and almond oil, or simple unguents. Those which are also astringents are various preparations of zinc, lead, bismuth, boracic acid, alum, etc. Stimulating antiseptics are generally chosen from mercurial preparations, especially the ammoniated, the yellow oxide, the nitrate or oleate. Resorcin, salicylic acid, ichthyol, thiol, etc., or tar or its derivatives in some form, are also used.

Others less frequently employed will be alluded to presently. Lotions, such as calamine and bismuth, which contain suspended powders, are dabbed on and allowed to dry, leaving a powdery deposit which protects the inflamed skin. They are chiefly adapted for parts exposed to the air, and where the discharge is trifling or absent. They should not be used on the scalp, as they clog up the hair in a very disagreeable manner. In recurrent papular eczema, they give great relief to the pruritus, and if used early and diligently, will cut short the attack in many cases. Soothing astringent lotions, such as the liquor or the glycerole of the subacetate or lactate of lead lotions, require to be continuously applied, so that the part may be rested and protected.

Strong lotions, such as those of tar, nitrate of silver, permanganate of potash, etc., require painting on once, twice, or thrice a day, according to their strength, and the object in view.

Soothing ointments and liniments should be applied thickly spread on lint or linen in strips, and then bandaged over, so that they may be closely and continuously applied to the part, and the ointment should be renewed about twice a day. Such applications merely smeared on twice a day are useless. Stimulating antiseptic ointments, unless very weak, seldom require continuous application. They may be used once or twice a day, according to the amount of stimulation required; but the part should always be protected from the air in the interval.

Soft pastes, such as Lassar's zinc, starch, and vaseline, with 1 or 2 per cent. salicylic acid, are very valuable in subacute eczema without much discharge, but the salicylic acid must sometimes be omitted for a time, and boric acid, gr. 10 to 20, substituted. Ihle's (Pastes, F. 4) is a similar paste, with resorcin and some lanolin. These and similar applications should be spread thickly on the part, and then covered with a many-tailed bandage of butter-cloth or similar porous material. The firm pastes contain gelatine and glycerine and zinc as a basis. Unna's (Pastes, F. 1) is one of the best; he generally adds ichthyol 2 per cent. If that kind of addition is required I prefer thiol, as it has no smell. Other antiseptics may be added as required. These pastes suit dry surfaces, or where there is but little discharge. The gallipot or tin is placed in boiling water, and the melted paste painted on with a stiff brush and dabbed with cotton wool to prevent the surface sticking to the clothing, etc. Pick's and Elliot's tragacanth

varnishes (Pastes, F. 6 and 7) may be used in similar cases. They are easier to apply, as there is no melting required; but, on the whole, I like the gelatine preparation best, as it does not make the part feel stiff.

Where the discharge is very profuse, desiccating powders may answer best; they should be freely dredged on several times a day, removing the old powder where it tends to cake from the discharge. Or they may be applied in Unna's bags (see p. 47). Except in the intertriginous eczema in the folds of fat people, I do not use powders very often where there is profuse discharge, as the caking of the discharge and the powder is much disliked by most patients. The powders most used are starch, kaolin, white peat, French chalk, lycopodium, etc., to which are added oxide of zinc, equal parts, the powdered oleate of zinc, one to three or four, finely ground boric acid, one to four or six; occasionally a little creasote may be beneficial, but it should be used with caution.

In a widely spread eczema, where the discharge is not too profuse, swathing the patient in bandages dipped in calamine liniment is often soothing, efficacious, and convenient. When the discharge is very great, lactate of lead, one to fifteen, or glycerole of the subacetate, one to ten, would probably be most suitable; they should be warmed slightly, lest a chill should be produced, by applying a cold lotion over a very wide surface. Even when an ointment might be otherwise suitable, to spread so much in strips would require a special attendant. When the active stage of the inflammation has ceased in a part of moderate extent, and there are only scaliness and moderate hyperæmia, mercurial preparations often suit best. Gr. 10 up to ʒj to the ℥j of the ammoniated or yellow oxide, alone or in combination, are the strengths chiefly used; they are very useful for scaly patches and for the head. The nitrate is generally used in the proportion of ʒj of the ointment to ʒvij of lard or white vaseline; it may be used in the same cases as the other mercurial applications. It is often a good plan, when the activity of the inflammation has subsided, to add a small proportion of the mercurial to the soothing remedy and increase it gradually. The oleate of mercury is not often used stronger than 1 or 2 per cent. in localised patches. To avoid salivation, mercurial applications must not be applied continuously or over too large an area.

In pustular eczema, wherever situated, iodoform is the best remedy; 5 to 10 grains to an ounce of lard or any astringent ointment, such as zinc or lead, soon destroy the pus cocci, and alter the character of the eruption to a serous or dry eczema. Iodol or aristol act in a similar way, but are much less powerful and certain in their action. There are conflicting statements about dermatol, but I have found europhen useful; it is rather more irritating than iodoform, and 1 per cent. ointments are quite strong enough.

Tar, in some form, is one of the most efficacious remedies in eczema, if used at the right stage, a point which requires much experience, and it is best to try it over a small area and see how it suits, before extending its use to the entire surface, for it is almost as powerful for harm as it is for good, if wrongly used. It is not indicated until the acute stage is passed, and although it may sometimes be used when there is still discharge, there is always some risk in such cases. It is in the squamous and papular forms that it acts best, relieving the intense irritation better than anything else. It may be used in a mild form, by adding a small quantity to the astringent ointments, *e.g.*, ʒss or ʒj of the ung. picis, ♏iij to ♏x of ol. cadini or rusci to ʒj of the weaker ointment, or in a lotion such as liquor plumbi subacetatis, liquor carbonis detergens et glycerini *ā ā* ʒij, aquam *ad* ʒviij, or even weaker, applied three or four times a day, or carbolic acid ♏v to ʒj of glycerine and rose water; or it may be used in a more vigorous manner, as recommended by Hebra; the pure tar, or ol. rusci or ol. cadini, is to be brushed firmly into a patch after the complete removal of the scales, and re-applied until a good thick coat of it adheres to the skin, and it is then allowed to separate spontaneously; if there is still much redness and desquamation, or weeping points and much itching, the tar must be painted on again. This kind of treatment is best suited for indolent patches, and the tar must be brushed in vigorously. For my own part, instead of letting the tar separate spontaneously, I prefer to let it be soaked off immediately by immersion of the patient or the limb in warm water for an hour or two; in short, what is called a tar bath. This is a most valuable treatment for chronic patches, which have existed perhaps for many years. For scaly patches, without much infiltration, merely painting on a lotion of liquor carbonis detergens and spirit in equal parts, or

nitrate of silver, gr. 10 or gr. 15 to ℥j of nitrous ether, is often sufficient, and relieves the itching, though it makes the skin tingle for a minute or two. Hebra's formula for scaly eczema of the face is a good one : acidi carbolici ,℥ij, glycerini, ætheris ā ā ℥j, spirit. vini rect. ℥vj ; but it must be used with caution at first until it is seen to suit, and, like all these strong preparations, should never be used until milder measures have been tried, and the patient's confidence is gained.

Sulphur has a past reputation for eczema ; locally, I rarely use it except as a weak ointment in E. barbæ in the later stage, and in seborrhœic dermatitis. Sulphur baths in the form of sulphide of potassium ℥j to ℥iv to thirty gallons are sometimes useful in the chronic folliculitis of the thighs, left sometimes after an acute eczema of those parts.

For similar patches, salicylic acid may be usefully employed to promote the removal of the thickened skin, and I have sometimes blistered the actual patch with great advantage. R. Simon of Birmingham advocates pilocarpin injections $\frac{1}{8}$ grain for these cases.

Sulphur springs such as Harrogate, Strathpeffer, Aix-la-Chapelle, and Luchon may be used in similar cases, and in chronic eczema generally ; internally, they may be taken in gouty and rheumatic cases. As a rule, the local use of sulphur aggravates all except seborrhœic and chronic eczema. The alkaline waters of Ems, Royat, and Vichy are more suitable than the sulphur springs as a rule. Hebra's soap treatment is very valuable for patches of old standing with great infiltration, such as are often seen about the legs and wrists. Have strips of lint or linen ready spread with oleate of zinc or lead ointment ; then moisten a piece of flannel with water and spread a piece of soft soap as big as a walnut upon it, or dip it into the spiritus saponis alkalinus and rub firmly for some minutes, wetting the flannel with water occasionally, until all the scales are removed and the part is red with excoriated oozing points ; then wash off the soap, dry the part rapidly, and immediately apply the ointment. The treatment may be repeated twice a day as long as there are any oozing red points left after the friction. In some cases, the addition of oil of cade, ʒij to the ℥j of the soap liniment, is useful where there is much induration.

I have also found the treatment of Beissel of Aix-la-Chapelle for chronic local eczema a good one :—The crusts are thoroughly soaked in oil at bedtime, and completely removed the next morning

by alkaline lotions, such as bicarbonate of soda, ʒj to ℥j. The reddened and perhaps freely discharging surface is then carefully dried, and painted with a one in ten solution of permanganate of potash; the painting is to be repeated once or twice a day, until a black scale of the thickness of a sheet of paper forms over the eczematous spot. At the end of a week, the black crust is allowed to separate, and with the exception of perhaps a few fissures the cure is usually complete. This treatment can only be used where the part is covered, on account of the black disfigurement.

The treatment of White of Boston is strongly recommended by Duhring for acute eczema. Lotio nigra of full strength, or diluted with equal parts of lime water, is applied to the part with a sponge for a quarter of an hour, allowing the black powder to remain on; then a little zinc ointment is smeared over, and the process is to be repeated every four or six hours.

Ichthyol is strongly recommended by Unna of Hamburg, for the treatment of eczema. Either as ointment or lotion, as it forms an emulsion with water, it is no doubt useful in obstinate moist circumscribed patches, such as are often seen on the hands and arms, and it is used from 5 to 50 per cent., the weaker preparations being preferable where there is discharge. Unna begins with a strong preparation and gradually reduces the strength. Ichthyol is least objectionable in combination with the gelatine zinc paste. Thiol has a similar action, and is also black, but it has no smell, and I now always use it instead of ichthyol, which is too disagreeable to have a large place in my practice. Remedies which do not stain nor smell, and can be used without interfering with the patient's employment, should always have the preference.

Having given a general account of different methods of treatment, it now only remains to state the modifications required, according to the position of the eruption.

E. of the Head. In a child, cut the hair short and soften the crusts with strips of flannel dipped in oil, and fasten them on with a calico cap for four or six hours; the crusts may then be removed by means of a comb or the fingers, or where they are much matted, by cutting the hair under them. If it is a case of E. pustulosum, an iodoform or iodol ointment, gr. 5 to ʒj of vaseline or lard, spread on strips of lint and kept on with the cap as before, will be the best, renewing night and morning, after wiping off the old ointment.

In a week or so, the pustular element will be removed, and the eruption will be dry, or at most serous ; oleate of zinc, or lead, or boracic acid ʒss to ʒj may then be substituted for the iodoform, with later perhaps a few grains of ammoniated mercury added. In E. vesiculosum these ointments may be used at once. In adults, the ointment may be applied with the finger as directly as possible to the scalp, and when the acuteness of the inflammation has subsided, the mixed ammoniated and yellow oxide of mercury may be used of various strengths, from gr. 10 to ʒss of each, according to the degree of inflammation. Where there is great irritation, a few minims of oil of cade to the ʒj is a good addition ; the hairs should be extracted, where there is pustular inflammation round them.

E. of the Ears. The redness and swelling are often very great. Calamine liniment freely applied and painted inside the meatus several times a day generally gives relief ; lactate of lead lotion, or glycerole of the subacetate of lead, one to ten, are also good applications, always with protection against temperature changes.

E. of the Face. In infants, lead, zinc, or boracic acid ointments, or Lassar's paste, are usually preferable, and in most cases the oleate of zinc is preferable to the oxide. Here again, the ointment should be applied continuously under a mask, and here, as in all infantile eczema, the great trouble is to prevent scratching, which often frustates all curative measures. Whenever it appears irritable, the rag should be raised and almond oil painted on, and the rag replaced. The hands at night must be restrained, and in very obstinate cases, it may be necessary to bandage them to the sides of the body like a mummy. In adults, unless the discharge is very profuse, calamine lotion agrees well and is very convenient ; if it is too drying, calamine liniment may be substituted, or some other greasy, soothing astringent.

E. of the Eyelids, or *Blepharitis*, is common in strumous children. The crusts must be softened with oil, picked off, the hairs extracted, and ung. hyd. nitratis, 1 to 8, smeared along the edges. In obstinate cases, McCall Anderson's plan of painting liq. potassæ gr. 10 to ʒj. carefully along the edges, after protruding and everting them between the thumb and finger, is valuable. The action of the alkali may be restrained in a few seconds with weak acetic acid

and water, and the process repeated every few days, with the dilute nitrate of mercury ointment in the intervals. Suitable constitutional treatment should always be employed.

E. of the Lips is troublesome, and leads to fissuring, on account of the constant mobility. The frequent application of soothing remedies, *e.g.*, liq. plumbi subacet. ♏xv to ℥j of white vaseline or lard, should always be tried; and failing this, Hebra's carbolic lotion referred to may be painted on, or nitrate of silver in nitrous æther may be resorted to.

E. of the Beard. When the hairy part of the face is affected, shaving should be insisted on, as soon as the acute stage is over, if not before; it is not so painful as might be anticipated, and if the patient is once prevailed upon to do it there will be no further difficulty in keeping it shaved. Where there are pustules the hair should be extracted; when it is acute, soothing remedies must be employed as continuously as possible; afterwards hyd. oleat. 1 or 2 per cent., weak sulphur ointment gr. 10 to gr. 20 to ℥j, or ung. hyd. nitrat. dilut., are the most suitable; in short, the treatment for sycosis is applicable here.

In very old-standing cases, multiple linear scarification of the whole surface is a very valuable preliminary, the surface being subsequently dressed with iodoform gr. 5 to gr. 10 to ung. acidi borici ℥j: the scarification may have to be repeated.

E. of the Arms offers no special difficulty; soothing astringents and antiseptics in pastes or ointments can always be continuously applied with a bandage when acute, while in the chronic scaly patches, nitrate of silver, liq. carbonis detergens and spirit, etc., or oil of cade, may be painted on. The papular forms are very common here, and bear tar well, but when there are only fresh papules breaking out continually, calamine lotion is often sufficient.

E. of the Palms is always troublesome, on account of the constant movement, and also because the natural thickness of the epidermis is increased by disease. In all cases, it is essential to remove the thick epidermis, as otherwise medicaments are useless. This may be done by mechanical or chemical means. The hard skin may be rubbed down with pumice stone or fine sandpaper, or potash lotions

ten to thirty grains to the ounce, applied as recommended by Hebra; when there are fissures this is very painful, however, and one or other of the following methods is preferable. Unna's plan of applying salicylic acid plaster, renewing every two or three days, is an excellent one; the whole thickened epidermis may be peeled off in this way. Another plan I have found work well is to apply a pancreatic emulsion constantly on lint; this disintegrates the cuticle, and much facilitates removal. Morris suggested papain with the same object, but it is not so powerful, and is expensive. Pepsin is also not so effectual, and is less suitable, as it requires an acid medium to act in, while the others act in an alkaline fluid.

After the epidermis is removed, salicylic acid gr. 10 up to ʒj to ℥j is one of the best remedies; here the gelatine zinc paste is very useful as a base, as it can be kept on without trouble, and only requires renewing once in twenty-four hours. Thiol and ichthyol are also said to have a powerful effect in diminishing thickening, and there is no harm in prescribing them, preferably along with salicylic acid, but I have not had convincing proof of their effect in this direction, though I have often tried them. When the inflammation is at all acute, soothing applications are best. When the fingers are affected, each one should be done up separately. Mercurial ointments, the oleate especially, are useful for E. palmæ.

E. of the Nails is always a very slow affair, as it is so difficult to get at the matrix; wrapping the ends up in ung. picis continually is often very useful, but disagreeable; less objectionable, is salicylic acid ointment ʒj to ℥j. As a rule, patients can only give up one or two fingers at a time to treatment. Shoemaker recommends oleate of tin ʒj to the ℥j. A weaker preparation gives a lustre to the nail, he says. I have not tried it.

E. of the Genitals is one of the most distressing varieties for the patient, and the most troublesome for the attendant. When affecting the scrotum acutely, ointments seldom succeed, except sometimes a weak boric acid ointment. Calamine liniment, or lotion, or the lactate of lead often answers well. Jackson is a strong advocate for sheet-rubber envelopes. The itching, which is quite maddening sometimes, may be relieved by painting on the nitrate of silver solution, gr. 5 to 15 to the ℥j of nitrous æther, or by Bulkley's

plan of applying a handkerchief dipped in water as hot as can be borne for two or three minutes, not more, then drying, and putting on the local application selected, at once. This I have found very successful sometimes, and has secured a night's rest; but better than all, is the application of a mustard leaf over the lumbar enlargement; this relieves the intense pruritus more completely, and for a longer period than anything else.

When on the penis, the lead and liq. carbonis detergens lotion, applied two or three times a day, is a good remedy in many cases.

E. of the Vulva is not quite so troublesome as that of the scrotum, though bad enough. Calamine liniment or lactate of lead is useful here also, but the nitrate of silver solution, not more than gr. 5 to the ℥j of nitrous æther at first, is probably the best application; as a rule, the smarting only lasts a few minutes; of course, the possibility of its being due to diabetes mellitus must be borne in mind, and if glycosuria is present, constitutional treatment in accordance with it, must be adopted. Uterine or ovarian irritation if present, should also be removed.

E. of the Legs. In all cases of eczema below the knee, rest in a horizontal position is an important adjuvant, especially if there are varicose veins; bandaging carefully from the foot upwards, is the best alternative to rest, but I do not care for Martin's rubber bandages, except when there is an elephantiasis condition or tendency to papillary hypertrophy. Boric acid ointment ℥ss to ℥j is one of the most generally applicable, unless the discharge is very profuse, when a lead lotion of some kind is better, the lactate preferably, but oleate of zinc or lead is often useful. For chronic patches on the knee or popliteal space Hebra's soap treatment is the best. The gelatine zinc paste is a very convenient application for these parts.

E. Circumscriptum (?) Parasiticum. I venture to give this name to the form of eruption which looks like a dry eczema, but its border is more sharply defined than is usual in E. squamosum. It occurs chiefly on the legs, especially below the knee, but I have seen it* on the arms. It is made up of minute papules, which aggregate into a pretty uniform, moderately red, scaly patch, with

* M., æt. fifteen, private note-book, vol. i., p. 165.

sharply defined borders, and perhaps outlying papules; it remains for years if untreated, slowly extending or forming fresh patches, and is not symmetrical; there is moderate itching. I have not succeeded in demonstrating a parasite, but a weak parasiticide ointment cures it, such as sulphur. sublim. gr. 20, acid. carbolic. ℥xv, adip. benz. ℥j.

Hans Hebra * has described a parasitic eczematous eruption, but it is accompanied with weeping and crusts, and is very chronic, if untreated. It is situated in the flexures of the elbows and knees, and on the neck. He treats it with Wilkinson's sulphur ointment, or with first a 10 per cent. pyrogallic acid ointment, and afterwards a 5 per cent. alcoholic solution of salicylic acid.

Epidemic Eczema. See Epidemic Exfoliative Dermatitis, under Pityriasis Rubra.

DERMATITIS REPENS.

Definition.—A spreading dermatitis, usually following injuries, and probably neuritic, commencing almost exclusively in the upper extremities.

Since I first described this disease from the following three cases, it is becoming recognised by other observers, and some additional facts have been gained which throw a little more light on its real nature.

The first case was a young man who had a part of a finger amputated from injury; it healed up normally, but at the border of the wound a dermatitis commenced, which extended gradually up to the palm, and then over half the hand, and down the fingers. My colleague, Mr. Godlee, then sent him to me. The general aspect suggested an eczema rubrum. The thin surface was denuded of epidermis, extremely red, with oozing points from which a clear fluid exuded in drops like sweat at the border of the inflammation, which was sharply defined; the epidermis was undermined by fluid and slightly raised. The disease extended steadily and uninterruptedly, at the rate of about an eighth or a fourth of an inch per week, and was not arrested for some months, when it had involved the whole forearm up to the elbow, while the hand had got well, leaving the

* *Wien. med. Blätter*, 39 and 40, 1881. Abst. *Ann. de Derm. et de Syph.*, 1883, p. 142.

skin red and tender. There was no manifest departure from health, he was well fed, and there was no great amount of itching.

The treatment at first was that for eczema; this failing, the undermined skin was snipped away; first nitrate of silver, and afterwards, sulphate of copper were applied to the spreading edge. The copper seemed to have some effect. The disease spread more slowly, and not uniformly, but was not really stopped. Finally, after many trials, lactate of lead, wrapped round it night and day, seemed to be the curative agent. A continuous arm bath made it spread faster.

Case two was a lady æt. twenty-eight, whose general health was not satisfactory; she was weak, nervous, and suffered from irritative dyspepsia, but was better since the eruption, which began six months before I saw her, on the flexor surface of the wrist, with a crop of red papules, which coalesced and discharged. The eruption then spread down to the hand and up the arm, while the oldest part gradually got well, but was very red; the margin was well defined, and covered with thick, dirty-looking crusts, but there were very few elsewhere; at the upper border, the crusts were about an inch across, but at the lower, the skin was only undermined; the rest of the surface, though very red, was almost dry. In four months it spread from below the elbow, up to the middle of the biceps. Four months later, it had travelled all up the right arm, across the back of the neck, and down the left arm to the elbow, the old parts healing. When last seen, it was almost well, owing apparently to the last treatment adopted. The general health was attended to, and lactate of lead, which had succeeded with the other case, was tried here and failed; tar, boracic acid, and many other treatments were tried in vain, but ultimately Beissel's permanganate of potash treatment, after two months, arrested the disease. A 10 per cent. solution of permanganate of potash was painted on three times a day till it formed a crust, cutting away the undermined skin before it was applied.

The third was a much milder case, a man æt. nineteen. The eruption began as small blisters on the wrist a year previously, and spread up the arm and down the hand, so that the whole palm and fingers, except the terminal phalanges, were affected, but the backs of the hands were free. He got well in about three months.

I have seen several cases since the above, both in my own practice and in that of my friends. My own cases have been, for

the most part, of a slighter character as regards extent and obstinacy, than the first two, and all the later cases, in which I have inquired into the point, have dated from an injury, generally of a slight character. In one, the sole was affected, the man having been walking barefoot on the sands. In the case of a woman æt. fifty-one, it started from a burn on the finger from sealing-wax, and had gone on for a year, but had been very slow in its progress, reaching only half-way up the palm when I saw it, and, unlike all the rest, it had remained quite dry throughout its course; a salicylic acid and gelatine paste cured it. In another case, a child of eleven, it affected only one finger after running a splinter under the nail, while in a man æt. eighty-seven, who had had injuries to his left shoulder and arm, and to his right hand, the fingers of the latter were typically affected when seen. The history was that forty-eight hours after the injury, an eruption had commenced on the left arm, extended up to the shoulder and down half of the forearm, the right ring and fifth finger being soon after affected; the arm eruption had healed so far that it cannot be affirmed that it was of the same character as the fingers.

I am indebted to Dr. Garden* of Aberdeen, for some excellent photographs of a typical case, in which the man had had a previous attack following an injury; and Dr. Stowers showed me a very extensive case of many years' duration, but this had other complications. The above cases tend to show, that the dermatitis starts as a result of a peripheral neuritis, generally set up by an injury often quite trivial; and since antiseptics are generally eventually successful, it is probable that secondary parasitic invasion tends to produce extension of the disease.

Diagnosis.—Eczema is the only condition for which moist cases of dermatitis repens can be mistaken. The oozing surface, entirely denuded, and the sharply defined, undermined, spreading edge are quite different to eczema. Even if the part traversed has healed, it presents a thinned shining appearance, quite unlike a healed eczema. The only case which was dry, might have been mistaken for a palmar syphilide, but there was a total absence of any other specific symptom, and it is rare for a syphilide of the palm to form only a single continuous patch, though, like derma-

* I have also to thank him for full notes of the case which I was allowed to include in my paper on Dermatitis repens at the Internat. Cong. Dermat., Vienna, in 1892.

titis repens, it spreads peripherally. Internal specific treatment has no effect in dermatitis repens.

The treatment can be deduced from what has been said in the narration of the cases.

Nepveu * read a case at the French Congress of Surgery in 1886 which probably belongs to this category. The patient was a woman, in whom a vesicular eruption, commencing in a superficial wound of the thumb, spread over the whole body. Bacteria were found in the vesicles, and the disease was checked by an iodoform dressing.

DISEASES DUE TO PUS COCCI.

Modern research has shown pretty conclusively that the same pus cocci, staphylococcus pyogenes aureus, albus, and, less frequently, citreus, are the pathogenetic factors of such clinically different diseases as impetigo contagiosa and its variety ecthyma, furunculus and carbunculus, while the pustular element, often seen in eczema, as already mentioned, is almost certainly of the same origin. The clinical, is doubtless the result of the anatomical difference, in the mode of introduction. In impetigo contagiosa, the cocci gain entrance through the epidermis, abraded through scratching or otherwise; the inflammation is limited to the papillary layer, and on the destruction of the materies morbi the lesion heals readily without scar. In boils and carbuncles, the mode of entrance is by the hair follicles and sebaceous gland orifices, the difference between the two being dependent on their anatomical situation, as stated in the account of those diseases. Sweat boils have hitherto not been shown to be due to pus cocci. The opportunities for the investigation are fewer, and attempts to discover the cause have been hitherto negative, so at present it can only be inferred by analogy.

IMPETIGO.

Deriv.—Impetere, to attack.

This term was used by the older writers for various forms of pustular dermatitis, chiefly eczematous, the formation of pus constituting, in their view, a special disease. Willan and Bateman describe five varieties:—I. figurata, sparsa, scabida, erysipelatoides, and rodens; the first four were eczematous, the last possibly cancerous.

* Paris correspondence, *Brit. Med. Jour.*, December 11th, 1886.

These terms are now all discarded; there remain only two diseases under this name—the impetigo of Duhring, and I. contagiosa of Tilbury Fox. The term impetigo should not be employed without its explanatory affix, as by itself, it conveys no definite meaning.

Duhring describes impetigo as a rather rare eruption, which begins as discrete, prominent, hemispherical pustules, which attain to the size of a split pea or finger nail, and are surrounded by a red areola. In number, they amount to a dozen or more, occur chiefly on the face and extremities, do not rupture spontaneously, and after maturation are absorbed, and dry into crusts of greater or lesser thickness. The disease runs an acute course of a few weeks' duration, and is chiefly confined to children of from three to ten years of age. He distinguishes it from I. contagiosa by its not being contagious, by its being a pustule from the first, formed deeper in the cutis, and rounded instead of flat. Treatment is the same as for I. contagiosa.

I must confess my inability to recognise this disease, as depicted by Duhring. Out of over twenty thousand children that have passed through my hands at the Children's Hospital, besides those at University College Hospital, in the last fourteen years, not one fulfilled all the conditions, though, with the exception of the non-contagiousness, I have seen the other features that he speaks of in some cases of I. contagiosa. Once, when Dr. Shoemaker of Philadelphia was present, a case appeared which we both thought corresponded with Duhring's impetigo; but the following week a sister of the patient came with indubitable I. contagiosa. Duhring is, however, such a competent observer, that I record the disease on his authority.

IMPETIGO CONTAGIOSA.

Synonym.—Porrigo contagiosa.

Definition.—Discrete vesicles or pustules, due to inoculation with contagious pus.

This is an important eruption, on account of its great frequency and liability to be mistaken for eczema. It was described independently by the late Mr. Startin and Dr. Tilbury Fox, the latter laying stress upon one phase of it, in which it occurs pseudo-epidemically, chiefly in the children of the poor. This form is

one of the conditions reported from time to time as "epidemic pemphigus."

Symptoms.—The epidemic form is ushered in by transitory febrile symptoms, and comes out in crops of vesicles for about a week; it then dries up, and runs its course in a fortnight. No line can, however, be drawn between such cases as these, and the far more common condition in which there are no febrile symptoms, and the eruption, as a rule, is more limited, and does not, as a whole, run a definite course. Without being confined to these regions, the lesions occur chiefly round the mouth, nostrils, chin, and the occipital region; in any of these positions they may coalesce into large patches, but the discrete isolated lesions are almost invariably to be found in the neighbourhood.

A few isolated pustules are often found on the hands and other exposed parts. In the occiput, pediculi are the irritants which lead to scratching, and the pus dries into greenish black scabs, matting the hair together, and producing so much irritation in the neighbouring glands that they enlarge, inflame, and even suppurate sometimes.

Primarily, the eruption is a vesicle or "watery head," from a pea to a finger-nail * in size, which is soon converted into a flat, irregularly outlined pustule. The contents dry up into a yellow or greenish scab, completely covering the excoriated surface, and there being no red areola, the scab has the appearance of being "stuck on," as Fox expressed it.

Variations.—It must be remembered that there are all grades of severity and extent of the eruption, which modify its appearance considerably. Thus, there may be a few discrete lesions only, or they may be combined with extensive patches, or the eruption may spread widely and rapidly over the body, and then is usually vesicular in the main.

When occurring on the limbs, it is very liable to be rubbed, the pustules get ruptured, covered with a flat, irregular scab, and surrounded by a more or less prominent areola. Lesions of this kind are generally considered to be of a different nature, and called "**ecthyma**," but their association with the more typical aspect of the disease on the face is too frequent for there to be any doubt that they are the same eruption altered by friction, to which it is

* This form in flat bullæ is well depicted in Tilbury Fox's *Atlas*, plate xxiv.

more exposed on the limbs than it is on the face. Then, too, some cases are primarily pustular, especially in cachectic children. Bullæ are sometimes formed by coalescence. On the other hand, I have seen the eruption in adults as red, raised, irregular papules, about one-third of an inch across, extremely irritable, and scratched into an excoriation at the top, but none of them distinctly vesicular or pustular.

Etiology.—Out of four hundred cases seen by the late Mr. Startin, three-fourths were children under seven years of age, and only twenty-seven were adults. It is chiefly seen among the poor, and is always due to the inoculation of contagious pus, independently of its source. Scratching easily leads to purulent lesions in children; hence pediculi capitis are a very common cause of I. contagiosa. Scabies and urticaria occurring mainly on the trunk and limbs, the lesions generally assume the so-called ecthymatous character. In a medical student, I traced an acute and general

Fig. 13.—Micrococci of Impetigo Contagiosa. × 550.

outbreak, mainly vesicular, to the irritation of the harvest bug (leptus autumnalis). Of course, it may also be propagated from one person to another. Much has been said of its frequently following on vaccination, but this is only another instance of pus inoculation; the vaccine lesion is often very itchy in its purulent stage, the child scratches it, and transfers the pus to the other parts of the body.

The contagium probably flourishes more easily in the cachectic, and the child who has it badly is generally pale and ill-nourished.

Pathology.—The admittedly contagious character of the disease suggests the presence of a micro-organism; and search has been made in the crusts, but their liability to be contaminated is so great that no deduction can be drawn from such observations. In the fluid from unruptured vesicles and pustules * I found chains of micrococci in twos, or multiples of two, which were most abundant in the pustules, and were also present at the periphery of the

* *Lancet*, 1881, vol. i., p. 82. Fluid was withdrawn in a capillary tube from an unruptured vesicle and blown upon a cover glass, dried, and stained with methyl violet. The cocci were then readily observed with an object glass magnifying 550 diameters.

epithelial cells, but not in the pus cells as in fig. 13. E. A. Barton, working in my laboratory, obtained pure cultures of staphylococcus pyogenes aureus from the fluid of unruptured vesicles. Inoculation on his own arm produced a vesicle, which soon healed. He was prevented from pursuing the subject, but Dubreuilh of Bordeaux and others have independently come to the same conclusion, and it may be considered established that staphylococcus aureus, and perhaps albus, are the pathogenic organisms of this affection.

The explanation suggested by Loewenberg for furunculi, that the microbes may get into the circulation, may perhaps serve also for the somewhat exceptional febrile cases with acute outbreaks which Fox drew attention to.

Diagnosis.—The discrete character of the lesions, the absence of redness round them, unless they are rubbed, and the inoculability of the fluid, are the characteristic features. *Pustular eczema* of the face most nearly resembles it, and when the lesions of I. contagiosa have coalesced into a patch, the resemblance is very close; but discrete lesions are nearly always to be found in the neighbourhood in I. contagiosa, and the surrounding inflammation of eczema will give the clue to the diagnosis. It must, however, be borne in mind that sometimes the pus of pustular eczema becomes inoculable, and the result is a mixed condition. Appropriate treatment for the I. contagiosa removes it quickly, leaving the eczema uncomplicated.

Prognosis.—Under favourable conditions the disease will run its course to complete cure in two or three weeks, but is often kept up for an indefinite period by auto-inoculation.

Treatment.—This is simple, and always effectual. Remove the crusts by soaking in olive oil until they can be detached by the nails or a paper-knife; then apply continuously an ointment of hydrarg. ammon. gr. 10, lard or simple ointment ℥j, and in a few days the sore will heal up completely, and leave only a transitory redness. Other remedies will also cure it, but the above obeys completely the motto "Cito, tuto et jucunde."

ECTHYMA.

Deriv.—ἔκθιμα, a pustule.

This is still considered by some dermatologists to be a distinct disease. The only cases at all entitled to be so considered, in my

opinion, are those cases of inoculated sores seen sometimes in butchers, farriers, cooks, etc., from decomposing animal fluids, resulting in irregularly outlined, flat pustules on a highly inflamed base, generally few in number and in the neighbourhood of the primary inoculation; but, even these, are very likely produced by the same organism as the ordinary form, which is, I am convinced, only I. contagiosa of the limbs and trunk, in which a more or less red, raised, and even rather hard areola is developed by friction, scratching, or other irritation.

The lesions are invariably secondary either to the ordinary form of I. contagiosa, as seen on the face, or to some pruritic disease, such as prurigo, scabies, pediculosis, or other parasitic irritation, and in children also to urticaria. In short, whatever gives rise to scratching is liable to produce in predisposed subjects the discrete, flat, irregular scabbed pustules, with their surrounding areola, which characterise the so-called ecthyma, the lesions of which on the lower limbs sometimes attain to a large size, *e.g.*, an inch or more in diameter. In every case of this kind, therefore, it is not enough to give the eruption a name, but the source of irritation must be carefully inquired for. Sometimes this cannot be discovered, on account of the irritant being no longer in operation, the disease being kept up by auto-inoculation. The lesions can always be healed by the same treatment as that for I. contagiosa, but fresh ones may form if the source of irritation be not also removed. Since the eruption is most easily excited in delicate children, in the destitute poor, the dirty and cachectic, good food and hygiene, cod-liver oil, and iron are often important adjuncts to the treatment.

FURUNCULUS.

(Latin for boil, diminutive of *fur*, a thief.)

Synonyms.—Boil, furuncle; *Fr.*, Furoncle; *Ger.*, Furunkel, Blutgeschwür.

Definition.—An acute, circumscribed, phlegmonous inflammation round a skin-gland or follicle, resulting in its necrosis and suppuration.

Symptoms.—In this familiar affection, the lesion may be single or multiple, in the latter case, coming in crops of from two to

half a dozen or so, and no sooner have these got well than a fresh crop appears, and keeps up the process of what is termed "furunculosis" for weeks, months, or years, if untreated. The boils do not form any definite group, but are isolated and scattered over the same, or widely separated regions.

Each boil begins as a painful induration in the skin, soon followed by a red spot or pit, which feels like a firm disc or shot-like body embedded in the corium. As it enlarges, it becomes raised above the surface, and gradually forms a convex swelling, with a tendency to point, and when fully developed is from a small split pea to half a plum in size, of a deep red, with or without a yellow centre, while at the periphery the colour is brighter, with red areola. The centre softens, gives way, and from the opening, pus, and a piece of whitish, pultaceous, necrotic tissue called a "core," are discharged, though not infrequently this core may require a day or two longer for complete separation. Up to the time of evacuation there is a burning and throbbing pain, especially at night, quite out of proportion to the size of the boil, while the tenderness is so great as to be proverbial. All this is relieved at once by the discharge; the indurated, infiltrated tissue gradually softens, and is absorbed; the swelling subsides; the redness fades; the cavity fills up by granulation, and leaves more or less of a scar. Or the tumour may stop short of suppuration and resolve, constituting what is popularly known as a "blind boil." Constitutional disturbance is often present in proportion to the number and size of the boils, and the lymphatics and glands in the neighbourhood are liable to sympathetic inflammation, going on sometimes even to suppuration.

Such is the history of furuncular inflammation in a sebaceous gland or hair follicle; and, while no part of the body is exempt, boils occur chiefly in the neck, face, forearms, buttocks, and legs.

Variation.—When the furunculus begins in the sweat coil, it constitutes what Verneuil described as hydrosadenitis phlegmonosa. *Pollitzer has recently given a good critical review of the subject, with the histology, and a carefully recorded case in the face and neck of a man of twenty. He brings forward evidence to show that Barthélemy's recently described "acnitis" and

* "Hydradenitis Destruens Suppurativa," *Jour. Cut. and Gen.-Ur. Dis.*, vol. x. (1892), p. 9, with full references to literature. The name would be a good one if he left out the middle term.

Lukasiewicz's "folliculitis exulcerans" and hydradenitis are all the same disease, but Barthélemy denies this. The process lies deeper than a boil, commencing in the subcutaneous tissue as a firm millet-seed-sized nodule, which enlarges as it grows upwards, until at the surface, it forms a little tumour about the size of a pea, round, red, soft, without much induration, and almost painless; a drop or two of pus can be evacuated by puncture, or, if left to itself, it gets yellowish and bursts, drying up into a dirty adherent crust, and ultimately leaves a depressed pigmented scar.

It is most frequent in the axillæ and fork, and all about the genito-anal region, near the nipples, the arms, and sometimes the face and neck, and may form anywhere (except the soles), where there are sweat glands. Except that at first it is subcutaneous, and only involves the skin as it nears the surface, that it has no mattery head, and that there is less induration and not much pain, it is very like the ordinary form of boil, and, like it, there may be only one or two, or a crop. They are ascribed to local irritation, but in my experience are connected with hyperidrosis. They are said to be more common in young people, but in two of my patients it came on at the climacteric. In a lady* of sixty-five, whom I saw with Dr. Duncan Greig, she had been subject for twenty years, dating from her climacteric, to suppurating lesions like boils, but without the induration of ordinary boils. They occurred symmetrically in the axillæ, the cleft of the anus and fork, but not in front, and to a slight extent in the bend of the elbow, at the root of the neck, and between the breasts. When one came on one side, before long, another matched it on the other. In all the regions affected, there was pigmentation of a lentiginous character and considerable scarring. When I saw her, she had only one recent, superficial, inflamed and boggy tumour the size of a split pea, without induration, and a puncture gave exit to a little sanious pus. There were older soft swellings about the gluteal cleft which also contained pus. The recent ones were tender, the older were not. She sweated profusely. There was no organic disease, but she took no exercise.

Etiology.—When single, they are usually dependent on local injury, such as blows, friction, or pressure, *e.g.*, on the buttocks of oarsmen, in prolonged decubitus from any cause, etc. When in successive crops, they are usually dependent, at least indirectly,

* Mrs. C. *Private Notes*, E., p. 130.

upon vitally depressing influences, sometimes of a septic character. Thus they occur in diabetes mellitus, after various specific fevers, especially variola, and in anæmic, lithæmic, uræmic, and septicæmic states. Of external causes, sewer gas poisoning is the most potent. There is, however, strong reason to believe, as will be seen in discussing the pathology, that the above conditions merely offer a favourable opportunity for the development of the *materies morbi*. In not a few instances, no defect of health can be detected, and there is a popular notion that too good living is responsible. The late Mr. Startin proved that they were auto-inoculable by scratching; that the pus was inoculable, *e.g.*, by a contaminated lancet, boils occurring at the seat of puncture; and that even prolonged contact, as by the occupation of the same bed, was sufficient for their conveyance.

Boils are a common complication in pruritic eruptions, such as eczema, prurigo, scabies, etc.

Pathology.—According to Kochmann, boils always begin round the hair follicles or the glands, but to these Verneuil has shown we must add the sweat glands, and it is now pretty well established, that the inflammation is set up by microbes which gain entrance through these channels. According to Pasteur, whose observations have been confirmed by Loewenberg, micrococci, which are now known to be chiefly, if not entirely, staphylococcus aureus, less frequently albus and citreus, can always be found in the contents of boils, and cultures from this are inoculable; but abscesses, not furuncles, are produced in animals. Guigeot accounts for this by the culture being introduced into the cellular tissue, instead of limiting the inoculation to the sweat ducts or follicular orifices. Loewenberg suggests that when once a boil has formed, the microbes may be transferred by auto-inoculation, and also that they may get into the circulation, and that the crops of boils are kept up in this way; but if this is so, it is strange that the process should always be limited to the skin glands and follicles. In order that these organisms should flourish, it is admitted that the soil must be suitable, *e.g.*, that there should be a predisposition on the part of the patient, and this is found in the various debilitating influences mentioned under etiology. The mechanism of the process is supposed by some to be, that the vessels round the gland or follicle become blocked, producing its death, and inflammation is then set up round the necrosed tissue

to get rid of it by suppuration. In aural furuncles * the organism most frequently found was staphylococcus albus, next to this S. aureus, and sometimes S. citreus. Kirchner of Wursberg, found S. albus only. These organisms have not yet been demonstrated in sweat boils.

Diagnosis.—The disease is so well known that the patient usually makes the diagnosis himself. The peculiarities of sweat boils have been already pointed out. The differences from a carbuncle are given with that disease.

Prognosis.—When occurring in crops the disease often gives much trouble, but perseverance in the method to be mentioned will be rewarded with success, though it is impossible to predict how long it will last. When dependent upon some serious general condition boils are often numerous, and aggravate the depression of health already present, by the suffering and worry they occasion.

Treatment.—The first thing is to investigate the general condition of the patient, examine the urine both for albumen and sugar, and see if there is any defect in the health, habits, and surroundings which will account for the disease. Among these defects, drainage and water supply are to be specially looked into, and in such cases, and in many others, change of air is often necessary. Unless the patient is gouty, tonics and nutritious diet are generally indicated, and ferruginous aperients (Mixtures, F. 16), are adapted to a large number of cases. Although the following internal remedies are to a certain extent useful, early local disinfection is the most efficient means of preventing constant recurrence, and if the circumstances of the patient allow of its being efficiently carried out, the boils will soon cease to form.

Two direct remedies have frequently been successful in my hands, viz., fresh yeast, half a wineglassful to be taken night and morning, or a less quantity more frequently. This is a popular and good remedy, though its *modus operandi* is not clear, unless we suppose that the yeast organism has the power of appropriating some pabulum necessary for the existence of the furuncle organism. Another excellent remedy is that proposed by Ringer: one-tenth of a grain of sulphide of calcium every two or three hours, or one-fourth of a grain three or four times a day. As the sulphide speedily decomposes and becomes inert on exposure to the air, it should be prescribed in coated pilules. Should these drugs

* Loewenberg, Internat. Med. Cong., 1887.

fail, and supposing every attention has been paid to the general health, one or other of the following remedies may be tried. Hardy advocates tar water, up to a quart a day; Piffard, the compound syrup of the hypophosphites, such as Fellowes' syrup. Phosphorus itself, iron, quinine, and the mineral acids are good tonics. Duhring says arsenic is often useful in from one to three-minim doses three times a day. Liq. potassæ with bark or bitters, ammonia and bark, are strong favourites with many; and the sulphite and hyposulphite of sodium in fifteen to thirty-grain doses four or five times a day are good remedies for many cases. Stout or port wine is sometimes a useful adjunct in the debilitated, though it should not be given indiscriminately. In cases due to sewer-gas poisoning, large doses of quinine are requisite.

Locally.—Every boil is a fresh nidus for the cultivation, and a centre for the subsequent dissemination of the cocci which produce the lesion; if, therefore, the cocci in each boil are destroyed as soon as possible, the supply will thus be exhausted. Practice corroborates this theory.

The treatment I adopt is to open each boil as soon as there is softening of the centre, and rub in iodoform thoroughly. Fresh boils soon cease to appear; iodol and aristol are less effectual. Eade's glycerine of carbolic acid treatment is on the same principle. Both theory and practice forbid the time-honoured plan of poulticing, and all hot wet dressings are equally calculated to favour the development of further boils. The boils should not be opened in the hard stage, and when they are discharging, they should not be squeezed. A small boil roughly handled is easily converted into a large one.

To abort them, Guigeot strongly recommends that spirit of camphor should be applied for a few minutes at a time, by means of a compress dipped in it three or four times a day; or tincture of iodine painted on freely three or four times a day, over and beyond the furuncle, until desquamation occurs. Loewenberg recommends a saturated solution of boracic acid; this plan is a good one, and even when it does not stop it, will limit the amount of suppuration. Other means to abort boils are caustics, nitrate of silver, nitrate of mercury, strong carbolic acid, and nitric acid painted on.

For sweat-gland boils, painting with collodion is simple and effectual for slight cases. Disinfection in the same way as

ordinary boils is often necessary, and the hyperidrosis should be treated (see that disease).

CARBUNCULUS.

(Dimin. of *carbo*, a live coal.)

Synonyms.—Anthrax,* Carbuncle; *Fr.*, Anthrax; *Ger.*, Brandschwär.

Definition.—An acute phlegmonous inflammation, circumscribed but more extensive than the furunculus, terminating in a more or less extensive sloughing of the tissues, and gangrene of the superimposed skin.

Symptoms.—The carbuncle is allied to, but is a much more serious affair than the boil, and when extensive and in elderly or cachectic subjects, may have a fatal termination. Unlike the boil, it is usually single, and favours the extensor aspects, especially the neck, shoulders, back, buttocks, and forearms.

A firm, flattish, inflammatory infiltration forms in the subcutaneous tissue, or deep part of the corium, and extends vertically and laterally; the surface is of a bright red, soon getting deeper-tinted, and there are pain and burning from the first. In ten days to a fortnight, it is fully developed, and then consists of a deeply seated, flatly convex tumour or circumscribed infiltration of a deep and livid red colour and hard, characteristically brawny base, gradually merging into the surrounding tissues. Softening of the centre of the mass and of the skin soon takes place, but there is no pointing, the skin being covered with pustules, and simultaneously giving way at several points, forming numerous cribriform perforations, through which sanious pus exudes, and the slough is visible and is slowly separated, either entire or in parts, and gradually comes away through the enlarged openings, leaving a deeply and irregularly excavated ulcer, with firm, sharply cut, everted edges; the cavity fills slowly up with new granulation tissue, and forms

* It is, I think, preferable to employ the term carbunculus instead of the more common one of anthrax, as that term is ambiguously used, sometimes meaning the affection under consideration, at others malignant pustule or the local manifestation of splenic fever, but the well-known name bacillus anthracis is exclusively applied to the splenic fever organism.

a proportionately large, often pigmented, and perhaps puckered cicatrix.

Variations.—Sometimes, when at its acme, the skin over it becomes bluish-black and gangrenous, a blood-filled bleb is formed, or the whole skin breaks down into a dirty, pulpy mass; or instead of moist, there is dry gangrene, the whole of the dead tissue drying into a hard brown or black eschar, which separates in the usual way. Or, again, the process may extend, the central changes being repeated at the periphery, with copious and exhausting suppuration. The general disturbance is considerable. Rigors, elevation of temperature, general aching, and other febrile symptoms, varying according to the extent of the lesion, are present in all but the smallest carbuncles. Where there is extensive sloughing, septic fever is often developed. The duration is then from two to six weeks, according to the age and vital powers of the patient and the size of the carbuncle, which may be as large as a soup plate; the most common size, however, is from one to three inches.

Etiology.—It occurs more often in men than women, and in middle and old age. It is most common in those who are suffering from constitutional depression from causes similar to those of furunculosis. It is a not unusual complication of diabetes, and its favourite positions suggest that its site is often determined by a local injury from pressure or otherwise, but this has not been definitely proved.

Pathology.—The generally received view is that the process is clearly analogous to that of the furunculus, due to the same staphylococci, and it is compared to a coalesced group of furuncles, the destruction being much more extensive in proportion, laterally and vertically, though, like the furunculus, it is said to begin in the sebaceous and sweat glands and hair-follicles.

Collins Warren,* of Harvard University, however, explains it as follows: The process begins in foci of inflammatory cells in the subcutaneous tissue; these coalesce and extend up the columnæ adiposæ, which swell, elongate, and disintegrate, the cells eventually reaching the surface and forming a pustule round the hair-follicle; laterally, the inflammation spreads along the lymph channels and vessels that branch off from these fat columns, so that

* *Columnæ Adiposæ, with their Pathological Significance in Carbuncles and Other Affections.* A small monograph. (Cambridge, U.S.: 1881.)

the whole mass of the corium becomes involved in the destructive inflammation, except a thin superficial layer which lacks the channels, present so abundantly below. Those of the pustular points visible on the surface which are not seated at the hair follicle are collections of wandering cells, dilating the papillæ into peg-top shaped cavities, and thinning the rete over them until it gives way. The same process extending subcutaneously, the infiltration becomes so dense that the blood vessels are pressed upon, and all the tissues break down except the more persistent fibrous bands which bind down the integument in the back, and which remain at the bottom of the cavity and form the well-known tough adherent sloughs. Thus in Warren's view, a carbuncle is primarily a suppuration in the subcutaneous tissue, and secondarily infiltrates the corium by channels which only exist where it is thick, and where there are rudimentary or lanugo hair-follicles, which do not reach down to the fat. In parts where the skin is thin these columns do not exist; the cribriform appearance is not developed, the pus oozing out at one or more less resisting spots, travelling along a lymph space to reach the papillæ.

Diagnosis.—The carbuncle is distinguished from the *furuncle* by its much greater size, its flatter shape, its brawny border, and when it is breaking down, by the multiple instead of the single opening and the complete destruction of the skin over the sloughy tissue beneath; from more *diffuse phlegmonous inflammations*, by its circumscribed brawny border, the greater painfulness, and the cribriform perforations.

Prognosis.—This depends upon the age and general health of the patient, and the size and course of the carbuncle. As at the commencement it is impossible to predict the size and course, the prognosis must be guarded; especially must this be the case in old people, and those broken down by disease, *e.g.*, diabetes. Those on or near the head and face are considered to be more serious than the others.

Treatment.—As in furunculosis, careful investigation into the patient's general health, especially as regards diabetes, is an important preliminary, and a supporting treatment is generally advisable from the first. Alcohol in any form, however, is better avoided, at all events until the contents of the carbuncle has been evacuated, as it is liable to increase the tension, and therefore the pain of the inflammatory swelling. When, however, it is opened, and there is

free suppuration, alcohol, preferably, as a rule, in the form of port or burgundy, is often required. Calcium sulphide, as in furunculosis, is an important aid in limiting the extent of suppuration, though it cannot altogether prevent it. Perchloride of iron in full doses (ʒss of the tincture or liquor every four hours) is often very valuable, and where there are any signs of septicæmia, quinine in full doses (gr. 5 or even gr. 10 of the hydrochlorate every four hours) often acts most effectually. Care must be taken to obtain sleep, if necessary by anodynes, hypodermic injections of morphia ($\frac{1}{8}$ to $\frac{1}{4}$ gr.) being one of the best forms. Chloral hydrate is indicated only when the pain is moderate. Every possible means must be adopted to improve the general condition and surroundings.

Locally, the old classical treatment of poultices and crucial incisions is abandoned by general consent, and boils are likely to be excited in the neighbourhood of the carbuncle by poulticing. Paget strongly advocates the old unguentum resinæ from the first; Hebra recommended cold compresses, but few support this; blistering or tincture of iodine round the tumour is said to relieve the tension; and subcutaneous section also has advocates. My own view is that at first glycerine of belladonna, thickly spread on lint, should be applied, and later ung. resinæ should be used in the same way until suppuration has set in; then Eade's plan of introducing glycerine of carbolic acid (one to two or four) in each opening is an excellent method, and often all that is necessary. When the slough has separated, the cavity should be dressed first with iodoform, then with wet boracic lint and oiled silk. Lately, as soon as there are any openings I syringe them out with 1 in 60 carbolic acid lotion and fill them up with iodoform, with very good results. When the carbuncle is extensive and the sloughs slow in separating it is a good plan to make an incision, as J. Collins recommends, and with a sharp spoon, scoop out the rotten contents, apply iodoform to the cavity, and then sew up or bring together the edges of the wound, keeping the cavity drained and antiseptic; but this will never be required if the case is seen early. Hypodermic injections of carbolic acid (one in ten) into the tissue of the carbuncle will, it is said, generally abort it.

POMPHOLYX.

Deriv.—πομφόλυξ, a bubble.

Synonyms.—Cheiro-pompholyx (Hutchinson); Dysidrosis * (Tilbury Fox).

Definition.—A vesicular and bullous eruption limited to the hands and feet.

This disease was described independently by Tilbury Fox and Hutchinson, originally from the same case. I have adopted the American name, as it does not assume any pathological theory.

The disease is not a common one, and the more severe forms are rare, but I have seen a good many cases since Tilbury Fox first pointed out its characters to me.

It is a disease that is seen chiefly in the summer, and is limited almost exclusively to the hands and feet, and while symmetrical in the main, one side is often worse than the other. The hands are always affected, while the feet often escape, and are seldom so bad as the hands. The eruption commences with burning and tingling, and development of deeply imbedded vesicles, singly or in groups, along the sides of the fingers and on the palms, but no part is exempt; in bad cases, the whole surface of the hands is affected. In the earliest stage, I have repeatedly verified Fox's observation, that small transparent rings of fluid are visible round the sweat orifices; but this cannot be demonstrated, as they become larger, when they have been aptly compared to boiled sago grains imbedded in the skin; at the same time too much stress has been laid on this appearance, as it is due more to the anatomical constitution of this part of the skin than to any peculiarity in the process. When the vesicles are grouped they frequently coalesce into larger bullæ with irregular outlines, which project considerably above the level of the skin. The contents both of vesicles and bullæ are neutral, or alkaline, perfectly clear at first, though the older ones are turbid. When fully developed, the hands are covered with vesicles and bullæ from one-sixteenth to one inch or more in diameter, with swelling and tension, but with little or no redness of the skin; in ten days or a fortnight the contents are absorbed, for the vesicles

* G. T. Jackson's dysidrosis is a different affection, described under Sweat Eruptions.

never rupture spontaneously, and the detached epidermis is exfoliated, or can be cut off, exposing the red delicate new skin, which never discharges like an eczema ; this soon hardens, and the disease is well, but is very likely to recur in the following year or later. During and before the eruption the hands are often in a condition of hyperidrosis, and it is most frequent in damp-handed persons, who are nearly always out of health at the time of attack. The following case is a fairly typical example and illustrates most of its features :—

George T. æt. thirty-six, carpenter, came to the hospital on January 23rd, 1883. He first suffered from the eruption six years ago ; since then he has had one or two attacks a year, all previous ones having been in the summer ; it is especially likely to come on when he is out of health and living badly. The feet are sometimes affected, but never severely. In this attack, both hands were involved, but the right is much the worse. There were large bullæ and vesicles on the palmar surface of the hands and fingers, and there were vesicles along the sides of the fingers, but the backs of the hands were free ; the vesicles and bullæ were from one-eighth to one inch in diameter, the smaller ones rounded, the larger irregular from coalescence. No connection with the sweat ducts could be traced, but none of the vesicles were in the earliest stage. His general health was now good. He was ordered perchloride of iron and oleate of zinc ointment, and in a week was sufficiently well not to attend a third time.

Variations.—It is doubtful whether there should be included in this category the very slight cases, which are not uncommon, where there are simply a few "sago grain" vesicles along the sides of the fingers, coming on in connection with slight derangements of health, and itching rather severely, drying and disappearing in a few days. In a few cases an eruption, generally of an eczematous aspect, appears on the arms or elsewhere, and occasionally the disease, instead of getting well quickly, lasts several weeks.

Etiology.—It occurs in both sexes, but is much more common in women. Hutchinson says he has never seen it below puberty or in old persons. The youngest I have any record of was a girl of twelve, the oldest a man of thirty-eight. It is most common in young women of nervous temperament, is especially liable to occur when they are broken down in health from worry or excitement, or other cause of nervous depression.

Pathology.—There has been much dispute about the pathology, chiefly as to whether it is a disease of the sweat glands, Fox affirming, Hutchinson denying this. For my own part, on clinical as well as anatomical grounds, I think the disease is intimately connected with the sweat apparatus, but I should rather connect it with hyperidrosis than dysidrosis. Primarily, however, I think the disease is of neurotic origin, probably a vaso-motor neurosis leading to inflammation in and about the sweat apparatus, but not limited to those structures.

Anatomy.—This has been investigated by Fox * and myself conjointly, by Robinson † of New York, by myself since independently, and by W. Williams,‡ Breda, etc.

Fox and I, in the first examination of the disease in an early stage, showed that many of the earliest vesicles, which are always formed in the rete, somewhat more in the upper part, were directly in the line, and interrupted the course, of the sweat duct, and in some of the coils there were signs of inflammation. Robinson, on the other hand, found the vesicles nearer the top of the rete and over the papillæ, and he could find no connection with the sweat ducts and glands. Having obtained some skin from another patient I found the following conditions, which I give in greater detail as they have not been published elsewhere.

The vesicles were always formed in the rete, generally in the upper part close to the horny layer, but sometimes in the middle, and occasionally quite low down. They could be shown to be distinctly in the line of the sweat duct sometimes, and a sweat duct could be distinctly seen leaving the vesicle, and it was, therefore, distinctly in the interpapillary part. In other parts, although there was no sweat duct in the section, the vesicle could be shown to be in the interpapillary process. On the other hand, and that, too, sometimes in the same section, some vesicles were evidently over the papillæ, and occasionally a sweat duct could be traced between the vesicles. On the whole there were probably more vesicles over papillæ than between them. Slight proliferation of the sweat duct cells could be seen in the upper part, and even sometimes in the lower, but in no case could I satisfy myself that the sweat coil was inflamed.

These observations apply to only the smallest vesicles; when comparatively large they encroach upon and destroy the whole of the rete, but seldom raise up the horny layer. The papillæ near the vesicles were infiltrated with leucocytes, but not densely; leucocytes were also to be seen near the upper wall of the vessels of the papillary layer, but not near the lower, and there was seldom any sign of inflammation round the deep vessels; indeed, the main feature was that the inflammatory process was

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* *Pathological Transactions*, vol. xxix. (1878), p. 264.

† *Archives of Dermatology*, vol. iii., no. 4 (1877), p. 289.

‡ *Brit. Jour. Derm.*, October 1891. I should not consider his cases typical cases of the disease, from his description. They belong to the slight cases alluded to.

almost confined to the papillary layer, and that it was of very moderate intensity.

Diagnosis.—The most characteristic features are its limitation to the hands and feet, the tendency of the vesicles not to rupture but to dry up, the spontaneous recovery, and the tendency to recur repeatedly, especially in the summer time. In these particulars it differs from vesicular eczema palmarum, which it other-

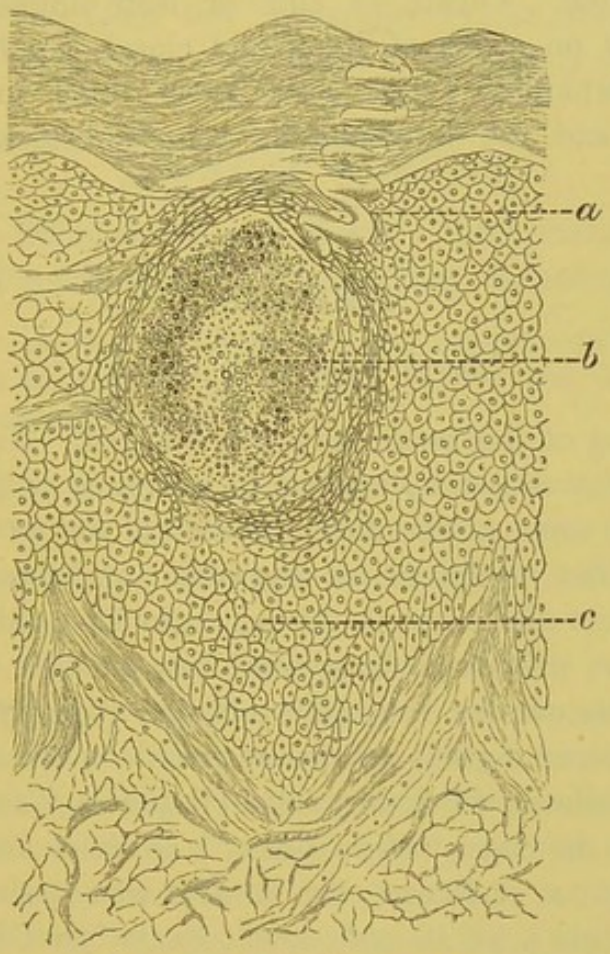

Fig. 14.—Pompholyx. × 150.

b, Vesicle formed in the inter-papillary portion of the rete directly in the course of the sweat channel *a* and *c*.

wise closely resembles, for here when vesicles form they rupture spontaneously, and expose a weeping surface instead of a dry one as in pompholyx. The position and formation of the bullæ by the coalescence of the vesicles are enough to distinguish it from pemphigus.

Prognosis.—This is good for each attack, which will probably be well in a fortnight, but it is almost sure to recur at some time or other.

Treatment.—The patients being almost always depressed, and otherwise out of health, efforts to improve their surroundings must be made, the mind diverted, and therefore change of air and scene plays an important part in the treatment. Internally, iron and strychnine, or quinine and iron, are generally required. Arsenic is strongly recommended by Robinson, but all my cases have got well quickly enough without it. Locally, one of the oleates is most suitable. Oleate of zinc or lead ointment should be spread thickly on strips of linen and closely applied, doing up each finger separately; this gives great relief to the tingling and tension, and the inflammation soon subsides, and healing follows.

HERPES.

Deriv.—ἕρπω, to creep.

The meaning of this term has much changed. As its derivation indicates, it was originally applied to creeping eruptions, but not always of the same kind; thus, one set of authors applied it to spreading surface eruptions, as ringworm, or herpes circinatus et tonsurans, terms still in use in this sense, in some parts of the Continent. Others used it to designate lupus exedens and spreading cancer, but this use for it is quite obsolete. Many older French authors considered a great number of eruptions of various kinds to be due to a diathesis which they call "Herpetism," and formed such eruptions into the class "Herpetides"; as these views meet with no acceptance out of France, the student who desires further information on this point should consult Bazin * or Gigot-Suard.†

In the modern and general acceptation of the term, herpetic eruptions are characterised by the presence of one or more groups of vesicles on an erythematous base. Even this clinical definition includes eruptions of very different pathology, such as H. iris, whose relations are with exudative erythema, under which it is described; and hydroa, which is sometimes called H. gestationis.

* Bazin's *Affections cutanées, arthritiques et dartreuses*, 2nd ed. (Paris: 1868.)

† *L'Herpétisme, Pathogénie, Manifestations, Traitement, etc.* (Paris: Baillière et Fils, 1870.) Also Lancereaux, *Traité de L'Herpétisme* (Paris: 1883); and Besnier's critique on it, *Ann. de Derm. et de Syph.*, vol. v. (1884), p. 530.

In this work three diseases only are classed under herpes—

HERPES ZOSTER;
HERPES FACIALIS OR LABIALIS;
HERPES PROGENITALIS OR PRÆPUTIALIS.

They are all admittedly of neurotic origin, but while in H. zoster the groups are multiple, and follow the course of the cutaneous branches of a sensory nerve, and as a rule the patient is attacked only once, in the other two recurrence is the rule, no nerve distribution can be made out, and there is often only one group.

HERPES ZOSTER.

Synonyms.—Shingles; Zona; Zoster; Ignis sacer; *Fr.*, Zona; *Ger.*, Feuergürtel, Gürtelausschlag, Bläschenflechte.

Definition.—An acute inflammatory eruption, consisting of groups of vesicles on an erythematous base, distributed in the course of one or more cutaneous nerves.*

H. zoster is a somewhat common disease, though it only forms 6 per 1,000 in my statistics. Although many qualifying terms have been employed to designate the locality of the eruption, there is only one kind of zoster.

Symptoms.—The typical form which gave rise to the distinctive names, which signify a girdle, affects one or more of the intercostal or abdominal nerves on one side only. Slight or severe neuralgia, in the course the ensuing eruption will take, usually precedes the eruption by a few hours to several days, generally, but not always, relieved on the appearance of the eruption, which is, however, attended with tingling and smarting. The eruption commences with the formation of groups of closely set acuminate papules, which speedily become vesicles, irregularly arranged on an erythematous base.

The eruption is unilateral; the groups come out successively, the first formed being nearest the nerve centre; and the eruption, as a whole, occupies from three days to a week before it is completely developed. The groups correspond with the position where the cutaneous branches pierce the fascia or are distributed in the skin, and there is often tenderness, as Parrot pointed out, in these positions.

* Pfeiffer has tried to prove that it follows the distribution of the cutaneous arteries, but the facts for the nerve theory are too strong for him.

In an intercostal herpes, one group is situated near the spine, another in the axillary region, and a third close to the median line anteriorly, but sometimes a group fails to be developed or remains papular, or there may be more than one group in each region, but the half-girdle is seldom continuous. The vesicles vary in size from a pin's head to a pea, or larger when confluent, and in number from half a dozen to a score in each group. The contents are at first clear, but soon become turbid, and in a simple case soon dry up into scabs, which fall off in a few days, leaving red marks which take somewhat longer to disappear. The whole process, up to the falling off of the scabs, lasts from ten days to three weeks.

Variations.—H. zoster is by no means confined to the trunk, as Willan thought, calling the eruption when occurring elsewhere H. Phlyctenodes, though the nerves of the trunk, especially on the right side, are more often affected than those of all the other regions added together. It may attack the domain of almost any cutaneous nerve, though it has preferences. On the head, branches of the fifth are frequently affected, especially the supra-orbital, and in this case the eruption extends on to the scalp, as it also does when the occipital nerve is attacked.

It must be borne in mind that the eruption is very often not limited to the branches of one nerve, but inasmuch as some fibres from several nerves pass through the same ganglion, when that ganglion is affected, some of the terminals of several nerves may be affected, and patches of herpes appear over them.

A more or less severe conjunctivitis is apt to accompany herpes of the ophthalmic division of the fifth, especially, but not exclusively, when the nasal branch is affected. Severe scarring is also a frequent sequel to this form of herpes. When the second branch of the fifth is involved, patches of herpes may also develop on the buccal mucosa, palate and tonsil on the same side, and Stephen Mackenzie once found at a post-mortem, herpes in the pharynx and œsophagus. The teeth on the affected side sometimes fall out, and even necrosis followed in Paget's case.* The nerves distributed to the neck, arm, less frequently, the forearm and hand, the buttock, genitals, thighs and other regions are from time to time affected, and sometimes it may be two neighbouring regions, such as the neck and arm, trunk and arm, genitals and thigh, etc. It is rare below the knee and very rare on the foot, except when

* *Brit. Med. Jour.*, vol. ii. (1866), p. 402.

it affects the saphenous nerve, when there may be vesicles on the heel.

Names have been given to designate herpes of these regions, and so authors speak of H. frontalis, ophthalmicus, cervicalis, brachialis, cruralis, genitalis, cervico-brachialis, intercosto-humeralis, genito-cruralis, and so forth. The only difference is in the positions,* but of course the eruption groups are in lines, not in zones, since they follow the nerve distribution. Herpes is very rarely symmetrical, and then it is said to be generally of syphilitic origin, and chiefly affects the fifth pair.† Jamieson ‡ of Victoria records a case of a woman who four days after severe headache and vomiting had also shooting pains in chest and shoulders, and a symmetrical zoster faciei, nuchæ et brachiorum. G. Carpenter § also records a case of a child of four with double zoster at the same level. It must be remembered that some cases of extensive H. febrilis of the face are easily mistaken for double zoster.‖ It may occasionally be bilateral, affecting nerves at a different level, and it is common for some of the vesicles to overstep the middle line, doubtless because a cutaneous nerve twig has extended farther than usual. Hæmorrhage sometimes occurs into the vesicles, or the inflammation may be so intense as to be purulent from the first, and in rare instances, the patches may ulcerate, or even become gangrenous. Scarring, of course, then ensues, and keloid may follow. For some inexplicable reason, zoster, as a rule, does not attack the same person more than once in his lifetime, but there are exceptions; one of the most notable was Kaposi's case.¶ Within a short space of time, there were five

* H. Head, of University College, carefully noted the distribution of thirty-six cases of zoster, which he collected in different parts of the hospital. These he was kind enough to place at my disposal, and adding them to sixty-four of my own, the result of the hundred cases was as follows: Trunk, 54 cases; ilio-inguinal, ilio-hypogastric, and genito-crural, 13; cervical, 13; fifth nerve, 8; leg, 8; arm, 3,—febrile herpes was not included.

† A case of this kind is figured in Hebra's *Atlas*, vol. ii., Lief. vi., Tafel ix.

‡ *Australian Med. Jour.*, May 1877.

§ *Brit. Jour. Derm.*, vol. iv. (1892), p. 23, with reference to other cases.

‖ Testut (*loc. cit.*), p. 74, collected thirteen cases of double zoster, but some were certainly H. febrilis.

¶ Abstract from *Wiener med. Wochenschrift*, 1874, 1875, and 1877, in *Med. Rec.*, November 15th, 1877.

attacks in the right cervico-brachial region, later on a sixth attack in the right lumbo-sacro-crural region, whilst the seventh, eighth, and ninth outbreaks were in the left cervico-brachial region, and there have been two abortive attacks since.

Tilbury Fox had a patient who had several attacks in the course of a few years, and always in the summer. Chronic peripheral irritation is the most usual cause of such repetitions. Thus I have seen recurrent herpes round the sinus produced by a diseased tooth. Pearce Gould had a similar case from caries of a rib, etc.

Although the neuralgic pain usually subsides when the eruption is out, and may even be absent altogether, sometimes, owing to a chronic neuritis having been set up, the pain persists, and in old people, in whom it is specially liable to occur, becomes of serious moment from exhaustion consequent upon the pain and loss of rest.

In a few cases, persistent pruritus, hyperæsthesia or anæsthesia, and in a case of Schwimmer's white patches, were left in the area of the affected nerve, and occasionally the function of the neighbouring motor nerve * has been interfered with, this being most frequent in facial H. zoster, where paralysis of the third or seventh sometimes ensues. Vernon, Broadbent, Waren Tay, and Voigt have also reported a similar association. J. Duncan † records two cases of old women in whom H. zoster was accompanied by hemiplegia of short duration, and probably, therefore, of vaso-motor origin. Besnier relates the case of a student who, while studying a case of ophthalmic herpes, was himself attacked, and permanent facial paralysis ensued. Weiss reports a symmetrical zoster affecting branches of the median, recurring at intervals and producing trophic disturbances of the skin and nails supplied by the median nerve, and "thumb clonus," *i.e.*, a tremor, lasting a quarter of a minute, excited by sharp flexion of the palm, and ceasing with extension of it. Barthélemy has noted two or three cases of pre-eruptive or simultaneous enlargement of the glands in the neighbourhood of the zoster,

* *Brit. Med. Jour.*, August 6th, 1870. Waller of Amsterdam, quoted in *Brit. Med. Jour.*, September 19th, 1885, relates two cases, one of paralysis of the seventh and another of that supplying the deltoid, following zoster of those regions. Both recovered under electricity. Other cases are on record.

† *Jour. Cut. Med.*, vol. ii. (1868), p. 241.

and argues from this against the primary nerve origin of the disease.

Children.—The affection is more common in children than in adults, and in girls than boys. The pain is never persistent, as in the aged, but the inflammation is more frequently intense enough to produce suppuration and gangrenous ulceration. The region of the fifth nerve * is seldom affected, except in the form of febrile herpes.

Etiology.—In my practice three-fourths of the cases were under twenty, and two-thirds of these under thirteen years; nearly all the rest were over forty. It is rare in infants, but Bohn records two cases, æt. five and seven months respectively, and Lomer records one in an infant of four days old. Sex appears to have no influence. There is a fairly general consensus of opinion that chills are a frequent exciting cause, and the possibility of atmospheric influences is favoured by the frequent occurrence of cases in groups. Hence some, like Erb and Landouzy, regard it as an acute specific and infectious disease, and hypothetical microbes have been invoked to the aid of the hypothesis, which is also supported by Kaposi † on the following grounds: that it generally occurs in small epidemics, recurring regularly in spring and autumn; that it is very unusual for a person to be affected twice; that the various epidemics exhibit various types, some in which all the cases are slight, while in others they are all severe, to which he might have added, the definite course of the disease. Kaposi presupposes a toxic influence on the nerve centres. Even if this hypothesis be accepted for these groups of cases, it would leave so many sporadic cases traceable to definite causes, that epidemic influence could only rank as one of the etiological items. Thus the occurrence of zoster in persons taking arsenic,‡ first pointed out by Hutchinson, of which several instances have come under my own observation, have been noted sufficiently often to point to an etiological relationship, not inexplicable, since arsenic acts on the peripheral nerve ends, and peripheral neuritis

* An exception to this is figured in plate viii., *Sydenham Society's Atlas.*

† Kaposi, *Wiener med. Wochenschrift*, Nos. 25 and 26 (1889). Abs. *Brit. Jour. Derm.*, vol. ii., January 1891.

‡ Neilsen found that of 777 cases of psoriasis 557 were given arsenic, and among them ten cases of zoster occurred, *i.e.*, 1·8 per cent., while not one case occurred in the 220 who received no arsenic and were treated with large doses of iodide of potassium.

is sometimes one of its toxic symptoms ; an exciting cause such as a chill is perhaps necessary also. Sattler reports a case from coal gas, and Leudet from carbonic oxide poisoning, possibly due to a toxic neuritis.

It is not infrequent in tubercular subjects (Leudet, Barié, Leroux, etc.), and in ataxics (Charcot, Fournier, Buzzard, etc.). Various mechanical peripheral nerve irritations are noticed in the next section as exciting causes. Probably Touton's case, in which an abortive herpes followed the intra-muscular injection of salicylate of mercury, was from that cause, rather than from the nature of the drug.

Pathology.—Hypothetical germs apart, zoster is produced by any irritative lesion or condition, in any part of the tract from the cord to the periphery of the nerve supplying the affected skin ; but the condition most frequent is a descending interstitial neuritis of the spinal ganglion. The proofs of this are contained in the following :—

That zoster is a neurosis was inferred by Rayer, Charcot, etc., but was first anatomically proved by Baerensprung,* who showed that there was an interstitial neuritis of the posterior ganglion, and of the trunk of the nerve issuing from it to supply the region of the skin, where the eruption was distributed. This observation is true for the majority of cases, but not for all, as Baerensprung asserted. Weidner † found a lesion of the posterior spinal root between the cord and ganglion, they themselves being unaffected. Chronic inflammation of the posterior columns of the cord has been found associated with zoster, while the posterior root, the ganglion and nerve were unaffected.

Dubler ‡ has demonstrated a peripheral neuritis with absence of central disease in a case of zoster, where there were periosteal swellings on the ribs. The neuritis extended into the muscular twigs, thus accounting for the motor paralysis sometimes associated with zoster.

Curschmann § and Eisenlohr found multiple neuromata in the domain of the affected nerves, with the spinal cord and ganglia

* *Die Gürtel-Krankheit, Charité-Annalen*, Bd. ix., Heft 2 and 3 (1861-2): Berlin.

† *Berlin klin. Wochenschrift*, 1870.

‡ Virchow's *Archives*, May 1884, p. 185. Abstract in *Brain*, 1884, p. 550.

§ Quoted in *Viertelj. für Derm. und Syph.*, vol. xvi. (1884), p. 157.

intact, as were also the nerve fibres in the neuromata, which were due to a perineuritis. Neuromata followed herpes in two other of their cases, and in those of others, since their report.

In a case of widespread herpes, Hans Hebra found at the necropsy two foci of disease in the cervical ganglion.

The lesion is not necessarily inflammatory. Wyss, Sattler, and Kaposi * in cases of H. frontalis, found hæmorrhage into the Gasserian ganglion ; hæmorrhage into the cauda equina with crural herpes has also been found. Charcot had a case due to an embolus in a branch of a sacral artery, which pressed upon one of the spinal roots of the cauda equina at the foramen.

Nevertheless, interstitial neuritis is the most common lesion, irrespective of the origin or position of the exciting cause ; thus herpes has followed neuritis of the trunk, produced by gunshot or other injuries (Mitchell, Morehouse, Kean, etc.), cancer of the spinal column and of the pleura (Charcot and Ollivier). Leprous deposit and peripheral irritants, *e.g.*, arsenic to destroy the nerve of a tooth, produced herpes of chin, cheek, and ear of the same side (Lesser). The application of the galvanic current has twice produced it—once where the poles where applied (Liveing), and once away from them (Köbner).† Similar cases are those after extraction of a tooth, tapping hydatids, a hydrocele and psoas abscess, and after re-vaccination (C. Thompson). It has also been ascribed to reflex irritation (Jewel). Zoster has also been recorded in connection with cerebral lesions, but not any special one, nor had the other parts of the nervous system been shown to be free from secondary or other changes.

The **anatomy** of the eruption itself has been investigated by Biesiadecki,‡ Auspitz, Basch, Ebstein, and Haight of New York. They concur in the following : that the vesicles are formed in the same way as in eczema, the process proceeding from the papillary layer in which the vessels are dilated ; the papillæ are enlarged, and, together with the corium, infiltrated with leucocytes, which may extend into the subcutaneous layer. The effused fluid forces its way between the rete cells, elongating and compressing them,

* Kaposi, p. 322. The references to the following facts are given in a paper by myself on the lesions of the nervous system related to cutaneous disease, in October number of *Brain*, 1884, p. 363.

† *Neurol. Centralbl.*, May 1st, 1890.

‡ *Beiträge zur Phys.* and *path. Anat. der Haut*, p. 245. (Wien : 1867.)

together with the cells of the sweat ducts and hair follicles, into a network of narrowed cells, the meshes of which contain connective tissue cells (? leucocytes) which have worked their way thither through the rete. Both Bewley and Pfeiffer describe cells like giant cells in the rete.

Diagnosis.—The diagnosis of zoster is generally easy enough; groups of large vesicles on an erythematous base, arranged along the course of one or more cutaneous nerves, are sufficient to establish it. The large size of the vesicles of herpes, which dry up instead of rupturing and emitting a continuous discharge, and the nerve distribution, are distinguishing features from *eczema.* It is sometimes difficult to decide between zoster and *H. facialis* or *genitalis*, but this is not of much practical importance. The presence of pain before the eruption, and the existence of several groups unilaterally distributed, or unusual severity in the character of the eruption, would be in favour of zoster, while previous attacks and a single group, or being on both sides, would indicate the trivial forms. Many of the reported double zoster cases are really H. febrilis, and on the face it may be especially difficult to decide, but the more abundant the eruption on both sides of the face the less likely it is to be true zoster. According to Thibierge, ophthalmic zoster always scars,—I should have said *nearly* always. The other herpetiform eruptions are always bilateral.

Prognosis.—Unless the lesions are more severe than usual, two or three weeks are nearly always sufficient to bring zoster to a favourable termination; but continuous irritation of the nerve or its branches may lead to prolongation by the formation of fresh groups, and of course when there is ulceration or gangrene longer time is required for repair.

Treatment.—Since the tendency is to run such a short favourable course, treatment is fortunately scarcely required. It is very doubtful whether we can shorten its duration, and very difficult to decide whether a rather shorter course than usual is spontaneous or due to the drug employed. Ashburton Thompson and Bulkley, however, state that one-third of a grain each of phosphide of zinc and nux vomica extract at the commencement, and every three hours afterwards, control the pain and abort the eruption. Where the neuralgia persists, antipyrin in ten-grain doses, quinine in full doses, iron, strychnia, arsenic, salicylate of soda, and cod-liver oil and a highly nutritious diet, generally offer the best chance of

combating the neuritis; blistering over the nerve root and hypodermic injections of morphia are sometimes required. External treatment is useful to protect from irritation, and to allay the pain or discomfort. Dusting powders of starch or zinc, with morphia and camphor added where there is much smarting, put thickly on cotton wool and bandaged on, give great relief. Calamine lotion allowed to dry on is useful; collodion painted on has appeared to me to hasten the absorption of the fluid and drying up of the vesicles; the addition of morphia is often desirable here also. The local treatment for persistent after-pain is hypodermic injections of morphia, and repeated blistering over the root of the nerve, which in some cases has answered admirably in my hands. Rubbing the part with menthol or chloroform epithems gives temporary relief, but better than all, in some cases, is the continuous current applied in the course of the nerve, from ten to twenty cells of a Leclanché battery should be applied for about ten minutes daily. Duhring says that the continuous current applied before the appearance of the eruption will sometimes render the impending attack abortive, but this I have not tried; he also recommends ʒss to ʒj of the fluid extract of grindelia in ℥j of water as a lotion. Leloir and his pupil Dupas strongly advocate the use of alcohol, with two or more per cent. of resorcin, thymol, menthol or other antiseptic, applied constantly on pads either to abort or shorten the course of the disease.

Zoster Atypicus Gangrænosus et Hystericus.—Kaposi relates and discusses four cases of a vesicular affection which he considers entitled to the above designation. In all the cases, the main features were an eruption of vesicles and papules, chiefly in groups, followed by central scabbing, which was often surrounded by a corona of pus or minute pustules. In some parts from coalescence, large areas of gangrene were produced, and when the sloughs separated the granulating surface cicatrised often with keloid development in the scar. The eruption stage lasted from four to eight days, and then retrogression took place. The eruption was symmetrical, did not correspond to any spinal or cranial nerves, and showed a marked tendency to recurrence; in the first case three times, while in the second and third cases there were second attacks after a year or two. These three cases were all in hysterical young women, but the fourth was a man

who was only seen once, and had on his left forearm scabbing, vesicular groups, and striæ like case three. In its unilateral and possibly nerve distribution it was therefore not on all-fours with the first three cases. Kaposi discusses the diagnosis and pathology of the affection, and considers artificial production of the eruption may be excluded, and that it was distinctly different from the so-called spontaneous gangrene described in Doutrelepont's case and in many others; and finally refers it to atypical zoster, as the gangrene, bilateral distribution and tendency to recur, were all features which are seen occasionally in herpes zoster.*

HERPES FACIALIS.

Synonyms.— Herpes labialis; Herpes febrilis; Hydroa febrile.

Definition.—A herpetic eruption, occurring chiefly on the lower part of the face.

This eruption is very common, and occurs most frequently round the mouth, especially on the lower lip, but it may appear on any part of the face below the forehead, on the auricle, on the mucosa of the conjunctiva or of the mouth, such as that of the cheeks, palate, uvula, pharynx, tonsils, and larynx; and Barthélemy mentions a case, in an old woman dying of pneumonia, in which some patches on the chest, with very large vesicles, were referable to herpes febrilis rather than to zoster. It comes out suddenly, with heat and tension of the part, followed in a few hours by a slightly papular eruption, which soon becomes vesicular on a reddened base. The vesicles enlarge to the size of a hemp seed or a small pea, are arranged irregularly in one or more groups of six to twelve each, and in a few days dry up and form small scabs, which drop off a few days later, leaving only transitory reddened marks, the whole process occupying eight to ten days.

In the vast majority of cases, as Hutchinson first pointed out, shivering, or at least a sense of chilliness, precedes the eruption, and there is often a considerable rise of temperature, due, however, to the disease in which the eruption is an incident. It is therefore chiefly met with in those diseases in which shivering is a prominent symptom, such as febrile colds, pneumonia, ague, tonsillitis, etc., but only occurring once in each attack. Vogel says

* *Archiv für Derm. und Syph.*, vol. xxi. (1889), p. 561, with coloured plate.

that in predisposed persons, local irritation, such as contact of the lips with pepper and salt or other spices, and even healthy saliva, will produce an attack.

Pathology.—Its connection with shivering suggests a neurotic origin, probably a reflex irritation of the sympathetic ganglia of the affected region through the fifth nerve.

St. Clair Symmers* has recently isolated a microbe from the vesicles of a pneumonic herpes labialis. It was of either rod or thread form, and in presence of oxygen when cultivated on gelatine, but not on potato, developed a pea-green pigment, resembling that of Frick's bacillus virescens, and different from pyocyanin.

Prognostic Significance.—Its frequent occurrence in sthenic pneumonia, which begins with a rigor and runs a pretty definite course, whilst it is less likely to occur in asthenic pneumonia, is perhaps the foundation for the notion that herpes is of good prognostic significance in pneumonia, a view advocated by Germain Sée ; but as a rule, it is rather only an evidence of febrile disturbance, past or present, with shivering. Ornstein's statement that in ague whitish-yellow crusts point to a slight fever, brown ones to a more severe, and painful crusts to pernicious attacks, requires confirmation. Unless irritated, it invariably takes a favourable course, but in a few instances, tends to recur for years, often without apparent cause. Thus, one of my patients, a lady æt. seventeen, had one or two attacks a year from her earliest childhood, and she could not connect it with any definite cause. Another case, a gentleman æt. fifty-nine, doubtfully gouty, had had it five successive years, "excited by the summer sun and the sea air," rarely under other circumstances. In both these cases, the eruption was on the lower lip, but not always on the same place.

It is a prominent feature in cases of so-called "herpetic fever," which are reported from time to time, often occurring endemically. In all these cases "shivering" is a prominent symptom, and in no other way is the herpes related to the symptoms or cause of the endemic, which has in some cases been traced to defective hygiene, especially from sewer gas. The herpetic outbreak is in some cases associated with defervescence. Epidemics of this kind have been reported by Savage,† Seaton,‡ Lake of Teignmouth, etc.

* *Brit. Med. Jour.*, December 12th, 1891, p. 1252.
† *Lancet*, January 20th, 1883.
‡ *Clin. Soc. Trans.*, vol. xix. (1886), p. 26.

Treatment.—The only treatment required is protection from irritation, which may be afforded by calamine lotion, which also allays itching. Starch and zinc dusting powders, or weak boracic acid ointment, are also good applications.

HERPES PROGENITALIS.

Synonym.—Herpes præputialis.

Definition.—An eruption, consisting of vesicles in a group, on an inflamed base, occurring on the genital organs of both sexes.

This eruption is not uncommon, and would be of small importance were it not that its frequent recurrences give great annoyance to the patient, and excite apprehensions of syphilis. In men, it occurs most frequently on the inner surface of the prepuce, less often on the outer surface, in the sulcus, glans, meatus, the sheath of the penis, or even in the urethra (Diday). In women, its most common position is on the inner or outer surface of the labia majora, on the mons veneris, and occasionally on the nymphæ, or prepuce of the clitoris, and on the cervix uteri near the os externum. Obviously, therefore, the name most frequently used, H. præputialis, is inappropriate.

The eruption is preceded by itching and burning of the part, followed in a few hours by the development of a vesicle or a group of vesicles, seldom more than one group, on an erythematous base; there may be swelling and œdema of the prepuce. The vesicles are the size of a pin's head, contain a clear fluid, and when on a moist surface, look like opaque white specks; they rupture in a few hours, leaving tiny excoriations, which heal in two or three days. When on an external part they dry up, leaving a little scab, which soon falls off. The whole process is a matter of a week or less.

Variations.—When irritated, *e.g.*, by repeated sexual intercourse, mistaken zeal in the use of caustics, etc., the disease may be kept up for weeks from ulceration, which may spread and suppurate freely, with tenderness and enlargement, and even suppuration of the inguinal glands * (Berkeley Hill). Severe neuralgia of the

* Taylor and Bumstead, in their work on syphilis, relate a case where a man had sciatica four times a year for ten years, and seven times out of ten with herpes of the penis.

branches of the sacral, pelvic, or sciatic nerves, or gangrene of the site of the eruption, as Mauriac * describes, is to be explained by such cases being examples of H. zoster, rather than H. progenitalis. On the other hand, in Lausseday's † case, herpes recurred in a patch on the sacro-lumbar region at every catamenial period for five years, except during three months, when she had influenza and bronchitis, and this evidently belongs to the present affection and not to zoster.

Etiology.—It is much more common in men than women, and is usually, but not always, as Doyon asserts, preceded by venereal disease, such as gonorrhœa, or a soft chancre. It comes out most frequently two or three weeks after the sore is healed, or the gonorrhœa cured. It recurs every two or three months, or, in some cases, at regular intervals of three weeks or a month, the recurrences being generally determined by local irritation, especially coitus, passing a catheter, etc. For my own part, I am more inclined to ascribe it to such local causes than to internal disturbances, though it may arise from the gouty diathesis, excesses in eating or drinking, dyspepsia, or exhaustion from any cause, provided that the last attack is not very recent. These recurrences may last for years, and then cease, unless the tendency is reawakened by fresh local venereal troubles. On the other hand, the relapses are sometimes permanently interrupted by a severe general illness, such as small-pox, syphilis, etc. (Berkeley Hill).

Pathology.—The presumption is in favour of the disease being due to a reflex excitation of the neighbouring sympathetic ganglia, through irritation of the sensory nerves of the part.

Diagnosis.—No difficulty can arise in a simple case. The group of small vesicles on a red base is quite characteristic; but when not seen until suppuration has occurred, it may easily be mistaken for a *soft sore*. The chancre is flattened at its base and secretes scarcely any liquid, whilst according to Leloir the herpes discharges a large quantity of serous fluid when pressed, and is reduced in size; but in some cases, nothing but time or auto-inoculation can decide positively. In a few days, if the parts be kept separated

* Mauriac relates somewhat similar cases of neuralgia in *Herpès névralgiques des organes génitaux;* and in his *Ulcérations non virulentes des organes génitaux*, 1878, p. 49, gives a case of gangrene with H. progenitalis.

† *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 408.

and iodoform applied, the ulcer will clean and begin to heal, while a soft chancre will take longer before improvement sets in.

Treatment.—Wash the parts two or three times a day, and keep the surfaces apart with a piece of lint soaked in weak lead lotion ; or with wetted boracic lint, which I have found answer admirably ; or dry carefully and apply starch and zinc powder, and put a strip of lint or linen over it. Where suppuration has occurred, iodoform, followed by lotio nigra, would be appropriate, with rest, if the glands are enlarged. To prevent recurrences the patient should be enjoined to wash carefully immediately after coitus, and also daily. Circumcision has been recommended where the prepuce is long, but often fails, the eruption coming elsewhere. The gouty diathesis should be combated by appropriate measures, such as giving alkalies, regulating the diet, avoiding fermentable liquids, such as beer, champagne, etc. Doyon* says, in an interesting and exhaustive essay on the subject, that the waters of Uriage, of which he is the inspector, are the best means of cure for such cases.

PEMPHIGUS.

Deriv.—πέμφιξ, a blister.

Synonyms.—Pompholyx ; *Fr.*, Pemphigus ; *Ger.*, Blasenausschlag, Pemphigus.

Definition.—An acute or chronic eruption characterised by the formation of bullæ in successive crops, usually without antecedent lesions.

The disease is a rare one, occurring about once in 500 cases of skin disease in England and America. Kaposi's statistics of over 44,000 cases give 1 in 210 ; but he includes some bullous eruptions not classed under pemphigus by English writers. My own statistics, taking pemphigus and hydroa together, give 4·4 per 1,000.

There are two definite varieties—P. vulgaris, acute or chronic ; and P. foliaceus, which is always chronic. The older writers made many sub-varieties, one, B. H. Martius, with misplaced ingenuity, as many as ninety-seven. There are only a few of sufficient importance to require description.

* Doyon, *De l'Herpès récidivant des parties génitales.* (Paris : 1868.)

P. Chronicus (the specific title "vulgaris" is generally dropped) is the usual form, and will therefore be described first. In a typical case, hemispherical or oval bullæ, with tense walls and translucent contents, develop bi-laterally, and to some extent symmetrically, upon almost any part of the body; but they are generally most abundant upon the lower part of the face and trunk, and on the limbs. They come out in crops, at intervals of a few days, scattered singly, or irregularly grouped, vary in number from two or three to several scores, and are vesicular from the first, though there may be slight punctiform vascularity of the surface, preceding the pin's-head-sized vesicle, which rapidly enlarging, attains its full size in a few hours. The majority are from a quarter to one inch in diameter, but the extremes are from an eighth to two or three inches in their greatest diameter. The largest are generally formed by coalescence with neighbouring bullæ, and are therefore irregular in outline. The bulla projects abruptly and prominently above the normal skin, forming an oval or roundish tense-walled bleb, the fluid in which is at first perfectly clear, and there is no areola; but the contents soon become turbid from the increased number of leucocytes, and a narrow red areola forms as the purulent character increases. The effused fluid is soon absorbed, leaving only a thin scab on its site, formed by the dried cover of the bulla, or, if the latter ruptures, a superficial excoriation may ensue, and when this is healed, or when the scab falls off, a red stain is left, which after a time may become pigmented. The duration of each bulla is a matter of a few days; but the disease as a whole, by the formation of fresh crops, lasts from six weeks to as many months, the fresh bullæ eventually becoming fewer and smaller. Though there may be only one attack, as a rule the disease recurs several times at intervals of a few months, or a year, and then ceases altogether.

General Symptoms.—In a well-marked case, especially in children and old people, the eruption may be preceded by chilliness, nausea, and even vomiting, pyrexia amounting to a rise of two or three degrees, and other febrile symptoms, which often recur with each fresh crop of eruption; and when the excoriated surface is large, and the bullæ numerous and come out at short intervals, there may be severe prostration from the sleeplessness, pyrexia, and anorexia, and even death may occur in acute cases, within two

or three weeks from the onset of the eruption. On the other hand, in most adults, and where the bullæ are few and in moderate numbers, there may be little or no constitutional disturbance, but only local subjective symptoms, such as a feeling of heat or tension. Where the bullæ are most abundant and crowded, or if the pus is confined by the crusts, the lymphatics and glands of the neighbourhood become inflamed, but there is only actual pain and smarting when the corium has been exposed by the too rough removal of the crust, by scratching or otherwise.

Variations.—Great differences are produced in the clinical aspect of pemphigus, owing to the variation in number, size, and contents of the bullæ, the condition of the skin beneath their covering, the interval between the evolution of the crops or of the disease as a whole, and the constitutional or subjective symptoms.

In rare instances, the disease may be in a sense local. One or two large bullæ appear at a time, erratically as regards their position, but with rather a tendency to appear where the circulation is feeble, such as on the toes, fingers, or nose, or on the ankle or wrist, local venous congestion sometimes preceding the bullæ. This is spoken of as **P. solitarius** or **localis**, and is seen chiefly in the aged and debilitated. In a few cases, I have seen it limited to the face and back of the hands. In one, a boy of four, a bulla formed under each nail, detaching it from its bed, except at the base. Pick * records a case of an hysterical woman in whom it was unilateral, the whole right side being affected.

When they appear in continuous crops and in enormous numbers, it is **P. diutinus**. In this form, scarcely a part of the body is free from the eruption, and life is endangered.

Willan, Hebra, and Kaposi use the same term for cases where the relapses follow closely or even almost continuously on each other, instead of at the usual intervals of a year or so. Again, it has been used for cases where the bullæ continue to appear for many years, or even for the whole life, but only one or a very few at a time. Obviously, it is best to drop altogether the use of a term, the meaning of which varies according to the view of the individual who employs it.

The contents may be purulent at an early stage, or yellow

* Quoted *Arch. Derm.*, vol. vi., p. 283, from *Wien. med. Presse*, 1880, p. 183.

lymph may form on the base (**P. diphtheriticus**), or the inflammatory process may be still more intense and superficial, or a deep slough may form (**P. gangrænosus**)—this generally occurs in children only, and will be again alluded to;—or there may be hæmorrhage into the bullæ, varying in amount from enough to impart a mere pink tint to the serum, up to black (**P. hæmorrhagicus**, or **purpura bullosa**).

Under the name of "**P. vegetans**," Neumann * describes a serious and very fatal form of disease, which usually begins in the mouth, palate, and pharynx, pain on eating and swallowing being, as a rule, the symptoms first complained of, and the mucous membrane is white and more or less detached. After a variable interval of days or weeks, bullæ of ordinary appearance come out on the hands, feet, axillæ, and groins, and subsequently on other parts of the body. But instead of drying up, as usual, they remain excoriated, or ulcerate deeply, sometimes extending serpiginously; while in the folds, such as the groins and axillæ, they fungate into papillary excrescences, secreting a viscid, offensive fluid, and closely resemble condylomata. These, and the mouth symptoms, led to their being referred to syphilis by Hebra and Kaposi,† by whom the first cases were described. Some of the excoriations may heal, but most do not, and fresh crops lead to more and more denudation of the skin, and nutrition is seriously interfered with by the condition of the oral mucous membrane. The disease is invariably fatal, from exhaustion or intercurrent disease, when the skin is extensively involved. I met with a typical instance of this serious affection in 1887,‡ then the only one in England recognised as belonging to this category, though Hutchinson appears

* *Viertelj. f. Derm. u. Syph.*, vol. xii., 1886, with plates and references.

† *Die Syphilis der Haut.*, 1873, plates liii. and liv.

‡ Published in *Med. Chir. Trans.*, vol. lxxii. (1889), p. 233, with bibliography up to date. Since then cases have been published by Haslund of Copenhagen, in Danish; by Müller of Hamburg, two cases, *Monatsh. f. prak. Derm.*, vol. xi., p. 427, adopting Unna's new name, Erythema bullosum vegetans. He also collected twenty-four cases, and read a paper on them at Bremen reunion of physicians and surgeons in 1890. A case from Russia is reported in Sajous' *Satellite*. Marianelli published an Italian case, Abs. in *Viertelj. f. Derm. u. Syph.*, vol. xxii. (1890), p. 236. Nevins Hyde reports a case from America, still alive at time of report, in *Jour. Cut. and Gen.-Ur. Dis.*, vol. ix. (1891), pp. 412, 459. He found and cultivated a bacillus and coccus from an unruptured bulla, but without

to have seen several cases, but was unaware that it had already been described by German observers. Some of Hutchinson's cases were of a mild type, the mouth being chiefly affected, and the skin only a very little. These recovered under treatment. The disease is fortunately very rare.

More or less papillomatous development has been occasionally observed in other forms of pemphigus, such as P. foliaceus, and also in hydroa herpetiforme, but this is an accidental complication common to many forms of dermatitis, and does not bring them into relation with the well-defined morbid condition described, in which vegetation is only one very prominent symptom amongst others equally important.

Pemphigus may attack other mucous membranes, *e.g.*, the conjunctiva, and its local effects may be very serious, producing adhesion of the ocular and palpebral conjunctiva, and what von Graefe called "essential shrinking of the conjunctiva." * Whether this is due to pemphigus only is a disputed point. It has occurred at all ages from fourteen months to seventy-six years; some have, and some have not had bullæ on the skin. I have now seen several cases, but only one in my own practice, a German gentleman, who had in addition pemphigus of the palate and pharynx, leading to adhesions closing the posterior nares; the laryngeal and nasal mucous membranes were also involved, and he sometimes had bullæ on the skin. The disease had been going on for years.†

Charters Symonds reports similar general involvement of mucous membranes, but the skin was free.‡

Groups of milium are sometimes produced on the site of the bullæ, and I have seen, in what was otherwise an ordinary pemphigus, convex § erythematous swellings left after the drying up of the bullæ.

any proved significance. In same volume, p. 332, is a case of P. foliaceus malignus, by Munro and Schwartz, which reads like P. vegetans, except that papillomata are not mentioned; and in *Lancet*, May 23rd, 1891, Pagan Lowe of Bath reports a case. P. vegetans, therefore, is clearly a very definite and cosmopolitan clinical entity.

* M. Morris and L. Roberts published a case with coloured plate and general summary and bibliography to date in *Brit. Jour. Derm.*, vol. i. (1889), p. 175.

† D., p. 251, private notes.

‡ *Clin. Soc. Trans.*, vol. xxiii., 1890.

§ Mary S., æt. forty-four, U.C.H. I once saw an unruptured bulla on the edge of her tongue.

Great thickening of the horny layer of the palms and soles (tylosis) is occasionally seen in pemphigus, as in a case of P. pruriginosus related by myself (see Tylosis palmæ), by Besnier and by Quinquaud in a P. foliaceus, and also by Besnier and Brocq in hydroa herpetiforme.* The possibility of the hyperkeratosis being due to arsenic must always be borne in mind, as it has nearly always been given in these bullous eruptions, but Besnier has seen it when no arsenic had been given.

In **P. Pruriginosus**, as the name indicates, severe itching is the prominent symptom, and the consequent scratching produces, as usual, considerable modifications in the eruption; the contents of the bullæ soon become purulent; after a time wheals appear, and the bullæ sometimes develop on the wheals.

When the itching is very intense, the bullæ frequently abort, the earliest vesicles being torn open by the nails before they can develop fully. When the disease has lasted for years, the other phenomena of the long-scratched skin are evolved, such as eczema, ecthyma, or I. contagiosa, pigmentation diffused or in streaks or spots, and thickening with dryness of the skin. The loss of sleep and the constant worry produce considerable nervous depression, and may even wear the patient out; and all the severe forms may have a fatal issue, either directly from exhaustion, or indirectly from intercurrent disease, to which the vital exhaustion renders them vulnerable. These severe forms have therefore been classed by some authors as forms of P. malignus, as opposed to the typical P. vulgaris, which has been called P. benignus, but these terms are superfluous. The P. pruriginosus of Hardy is the affection described under Hydroa herpetiforme, while Hebra and Kaposi call it **P. hystericus.**

P. Leprosus and P. Syphiliticus are the bullous eruptions of leprosy and syphilis, and are described under their appropriate heads.

Acute Pemphigus is much rarer than the chronic form, and Hebra even denied its existence; but though, doubtless, cases have been

* Brocq thought my case was a hydroa herpetiforme, because the patient had red patches on the trunk when first seen; but these marked the site of former bullæ, and were not the erythema characteristic of H. herpetiforme. It is reported in *Brit. Jour. Derm.*, vol. iii. (1891), p. 170.

called acute pemphigus in which the bullæ were merely an accidental feature, as in bullous erythema, varicella bullosa, etc., there are other cases which run their course in from one to six weeks, and can only be regarded as pemphigus. It is much rarer in adults, than in children and in newly born infants. Adult cases have been recorded by several observers. Duckworth's* was very remarkable: a man suffering from albuminuria, in whom one-sixth of the body-surface was involved, and he died on the ninth day from the onset of the eruption in a typhoid state with a high temperature. Nothing to account for death was found post mortem. Senfleben also relates fatal cases from albuminuria. In Pitt's† case, a man æt. fifty, a tanner, the disease seemed to have arisen from blood-poisoning; he died in fourteen days. Even where recovery takes place, as in Southey's‡ case, æt. nineteen, and Payne's,§ æt. seventy, the patient was brought to death's door. Allen's‖ case, though acute in development, only affected the upper part of the body, and that not severely; it was preceded by itching, chilliness, nausea, malaise, and, as usual, accompanied by fever.

Children.—Acute pemphigus in children is much more common. Diarrhœa, sickness, and fever are usual antecedents and concomitants; its danger is measured by the extent of skin involved in a short time; it has supervened after the exanthemata, such as scarlatina and measles. Chronic pemphigus is also more common in children. Congenital pemphigus comprises those cases in which the children are born with a liability to the formation of bullæ on any part subject to the slightest friction. See Etiology.

Another infantile form, the so-called **P. Neonatorum**, is an acute bullous eruption, which must be distinguished from the well-known bullous syphilide; it occurs sporadically in unhealthy dwellings, and endemically in lying-in institutions or in certain localities. Some of these local outbreaks have been limited to the practice of a certain midwife, and in one such outbreak Bohn ascribed it

* *St. Bart.'s Hosp. Rep.*, vol. xx. (1884), p. 41.

† Pemphigus malignus, *Path. Trans.*, vol. xl. (1889), p. 303.

‡ *Clin. Soc. Trans.*, vol. viii., p. 179.

§ *St. Thomas's Hosp. Rep.*, vol. xii.

‖ *Jour. Cut. and Gen.-Ur. Dis.*, vol. vi. (1888), p. 121, with coloured plate and reference to two other cases.

to the midwife putting the children into too hot a bath; but it is more probable that the disease is of septic origin. In one instance which fell under my notice, the child was one of many who were attacked in the same lying-in institution; the disease ran a short and favourable course. Two others were twins from a house in which the drains were being repaired at the time of the confinement, and the mother had suffered from a sore throat, attributed by her to an offensive w.c. on the premises. The eruption in one of them began when it was four days old, about the pubes, thighs, and buttocks, outside the ischial tuberosities, but the vulva and the anal region were free; in the other, it began on the face, round the mouth and chin. There was no evidence of syphilis, and the children, though small, were fairly nourished and not cachectic; in both, the eruption was limited to the regions described, and got well in about a fortnight without treatment.

Schultz of Berlin obtained a pure culture of a coccus from a bulla, but attempts at inoculation on adults failed as far as the production of bullæ was concerned; inflammation, with slight suppuration and spontaneous healing, was alone observed.

In all the cases I have seen, the bullæ are of the usual type, not very numerous, and the children are well nourished, and do well when removed from their bad hygienic surroundings, but cases of extreme severity are described by Tilbury Fox.* "Apparently healthy children are seized with severe constitutional symptoms; the skin is livid, the areolæ of the bullæ are dark, the contents fœtid, the ulceration is deep and unhealthy, its surface is dark, blackish, and exudes an ichorous matter, the edges being livid and shreddy, so that large circular depressed black, gangrenous ulcers, acutely produced, are present." All parts may be affected, and the infants die in ten or twelve days. From the context it would almost appear that Fox regarded it as a bad form of the disease described by Whitley Stokes under the name of **P. gangrænosus**, which was probably varicella gangrænosa. See Dermatitis gangrenosa infantum.

Outbreaks of **Epidemic Pemphigus**, or P. contagiosus, are from time to time reported. Some of them are the variety already described of P. neonatorum, others are examples of varicella bullosa or impetigo contagiosa bullosa, and it is still a disputed

* Third edition, p. 212.

point whether there is a true pemphigus which may be contagious or epidemic. These epidemics occur invariably in children. Thus Colrat * relates a case of pemphigus in an infant æt. eighteen months, and a fortnight after its admission, four other children in the hospital for other ailments developed pemphigus, which ran a normal course. The bullæ were auto-inoculable, but the new one was smaller than the parent bulla. Micrococci like the figure 8 were found in the bullæ. He carefully excluded varicella bullosa as an alternative diagnosis, but they were possibly impetigo contagiosa.

Dr. Blomfield of Sevenoaks wrote to me in December 1891, informing me that there had been an epidemic in his neighbourhood; 10 to 15 per cent. of the Board-school children had had it in the course of the year, whole families having been affected. The bullæ, up to the size of half a walnut, came out on the face, hands, and feet, dried up, and left impetiginous sores.

P. Manson † of Amoy has described a P. contagiosus, which, as it is peculiar to the tropics, might be called **P. contagiosus tropicus.** There is a diffuse or infantile and an axillary or adult form, though neither form is absolutely limited by age.

In the diffuse form, vesicles or tense bullæ up to half an inch or more in diameter, with clear contents and without areola, appear in crops, with irregular distribution, in any part of the body, except the scalp, palms, and soles. The contents soon get turbid and the bulla flaccid; it then soon ruptures, but instead of at once healing up, it spreads at the border with undermined edge to an inch or more in diameter, forming circles with pink, perhaps slightly crusted centre, or it may heal at one side and spread at the other, forming crusted crescents and suggesting a syphilide. It is especially liable to attack fat babies where the adjacent surfaces are in contact, and may then form a diffuse raw surface over a considerable area. The disease occurs chiefly in hot weather, but may be kept up by auto-infection for an indefinite time, and is readily communicated to others. Micrococci in groups, or in fours, twos, or singly, may be easily found by staining with an aniline dye. The Chinese did not seem so liable to it as Europeans.

In the axillary form, the disease is limited to the non-hairy portions; one or two bullæ about one-eighth of an inch are first noticed, soon followed by fresh crops, which begin as minute red

* *Revue de Médecine*, December 1884.

† *Trans. Hong-Kong Med. Soc.*, vol. i. (1889), and reprint.

papules with or without a minute vesicle upon them; from these, small vesicles up to a buckshot develop, with a slight areola; then larger bullæ, one-fourth to half an inch in diameter, which soon get turbid and rupture. The roof of the bulla may be left or rubbed off, but the lesion enlarges peripherally with its edge undermined to an inch or more; these different elements are mixed up in various proportions with others healed, or in process of healing. Manson thinks that the longer the duration, the smaller the lesions. The treatment of both forms is simple and effectual. Twice a day the bullæ should be opened, emptied, and the parts thoroughly sponged with 1 in 1,000 perchloride of mercury solution, and then a boracic acid dusting powder applied, adjacent surfaces being carefully separated. White precipitate ointment is also effectual, but, especially in hot climates, less pleasant than the perchloride. Careful consideration of this affection shows a remarkable resemblance to the bullous form of impetigo contagiosa, the peripheral spreading after rupture of the bulla being the most striking distinction. The high temperature may produce greater activity and account for minor differences. A few culture experiments would decide the point.

P. Foliaceus differs so much from the other forms, that if it was not that P. vulgaris sometimes lapses into this condition, it would appear to be a separate disease. It is very rare, occurring about once in five thousand cases of skin disease, and five cases (four women and one man) have come under my notice. It is one of the few kinds of dermatitis which have a universal distribution, and is characterised by the formation of flaccid bullæ, which speedily rupture and discharge their opaque contents, leaving an inflamed, excoriated, and fissured surface.

The disease may develop either from what appears to be an ordinary, though perhaps severe, chronic pemphigus, the bullæ changing their character, or they show the P. foliaceus characteristics from the first. The bullæ are quite flaccid, the fluid only just raising the epidermis irregularly in circumscribed patches from the subjacent parts, or, if the amount of fluid is somewhat greater, it bags into the lower part of the bulla. The contents are turbid almost from the first, and soon become distinctly purulent. The bulla soon ruptures by the extension of the peripheral detachment of the epidermis, and instead of drying up, the corium

remains moist and exposed between the bulla coverings, which, except at the edges, are adherent, but easily detachable, and the under-surface is moistened with sero-pus and an evil-smelling serum, which gives a faint nauseous odour to the whole room.

The epidermis splits into variously sized lamellæ, and the separation of these flabby crusts from each other leaves an interval of red corium, which exudes like an eczema, and imparts an irregularly tesselated appearance to the affected surface. At first, only a few square inches are attacked, but gradually the disease spreads, until in the course of weeks, months, or years, the whole body surface is affected, and there is literally not a sound spot anywhere, though bullæ seldom form on the palms or soles, the skin there being thickened, brittle, and easily fissured. The mucous membranes of the mouth and throat may be denuded of epithelium in patches, and the nails are thin, curved laterally and longitudinally, much furrowed transversely, and may be thrown off. The hair falls out, leaving only thin, small tufts; the eyelids get ectropic; and emaciation is extreme in some cases. When the disease is general, the aspect varies in different parts; where the exudation is great, relatively thick flat crusts are formed, partly epithelial, partly from dried exudation; and when thrown off in large patches, the red weeping surface looks like an eczema rubrum. Where there is less exudation, the crusts are thin and epidermal, separable into their component lamellæ, and of a dirty buff colour. In an advanced case, the formation of the bullæ is only to be observed by daily watching, as they form either where the corium has skinned over temporarily or underneath the thin crusts, and rupture in a few hours.

There is a feeling of stiffness and tension of the skin where the epidermis has dried, not much itching, but considerable smarting and soreness, owing to the movements of the patient rubbing off the loose crusts, or splitting the skin and exposing the corium afresh to the air.

After the disease has lasted for a considerable time, some have febrile symptoms, either intermittent or continuous, but, as a rule, the temperature is normal, and may continue so throughout. This was so in two of my cases, one of seven and a half, the other of two years' duration, in which the temperature while under observation never rose above 100° F. until fatal pneumonia set in. The disease is often of many years' duration, and the general

health may be good at first, but ultimately it breaks down. The patient wastes, is greatly prostrated, sinks into a typhoid state with low delirium, or falls an easy prey to some intercurrent malady, most frequently of the chest * or kidneys. It runs its course, however, with exacerbations and remissions. During the latter, some parts of the skin heal up entirely, and there may be general improvement, deluding both doctor and patient sometimes into the hope of a recovery, which is soon dispelled by a fresh outbreak of bullæ.

In one of my cases, a woman aged thirty-nine, some of the remissions lasted two or three weeks, but they were seldom complete. In this case, a severe cold preceded an extensive outbreak of ordinary pemphigus, which lasted over two years. Then she had "a severe influenza," and the bullæ came out more extensively than ever, and assumed the character of P. foliaceus; her health then broke down, and she felt so ill that she had to give up her employment. The rash was always worse at the catamenial period, which had ceased two years before admission.

The examination of the urine for twenty-three consecutive days was made by Dr. Halliburton, then my clinical clerk, and gave the following results. The daily average quantity of urine was 88 c.c. (31 ounces), the average quantity of urea 12·14 grammes (187 grains), ranging from 8·58 to 14·98 grammes, and the quantity of phosphates was 1·966 grammes (30 grains). The diet was kept as uniform as possible. The great diminution in urea was partly due, no doubt, to her being at absolute rest in bed. Her weight was 129 pounds.

Etiology.—There is much hypothesis, but very little ascertained fact, in the etiology of pemphigus. Sex has so little influence, that while Kaposi, on the strength of one hundred and three cases, states that it is three times more frequent in males than in females, other statistics give the preponderance the other way. It is, however, certainly more frequent in children and infants than in adults, and in rare instances has been hereditary; thus Kaposi gives an instance in which a young man, his mother, sister, maternal uncle, and half his children had it. That it is endemic sometimes among infants, and then is probably of septic origin, has already been shown.

* In Martha W., æt. thirty-two, (P.M.,) there was double pneumonia, pleurisy, and pericarditis. No visible nervous changes in the cord, medulla or brain, either macro- or microscopically.

That chills have a distinct influence in some instances in the production of P. foliaceus is pretty generally acknowledged, and I have already given an example of such a circumstance. Schwimmer also gives a well-marked case of it, and there are many others on record. It has already been pointed out that some cases of persistent P. vulgaris lapse into P. foliaceus.

In those already the subject of P. vulgaris, local injuries, such as an abrasion, contusion, and even friction, will often determine the development of a bulla on the injured spot. Köbner* met with a mother and her three sons in whom the slightest irritation of the skin, especially of the feet, was attended by the local production of bullæ. This predisposition was manifested from birth, and was most marked in the summer. The skin looked quite normal. Goldscheider and Valentin had previously recorded similar cases.

If, while excluding those cases in which bullæ form, as an accident so to speak, in other forms of eruption, we yet include under the term pemphigus the various outbreaks of bullæ which occur in the course of certain injuries and diseases, we shall have a long list of causes of certain forms of bullous eruption, most of which are connected distinctly with irritative or paralytic nerve conditions, the irritative being the more important. Although many instances of associated cerebral disease with bullous eruptions are on record,† I am not aware of any uncomplicated with cord disease; *e.g.*, bullous eruptions on the lower extremities are frequent in general paralytics, in whom posterior sclerosis of the cord is also very common.

Déjerine records a case in which, twelve days before death, pemphigus broke out on the extremities, and post mortem there were diffuse periencephalitis, sclerosis of the lateral columns, and degeneration of the peripheral ends of the nerves under the bullæ. In locomotor ataxy, bullous eruptions are not infrequent, and in three well-marked cases, sclerosis of the columns of Goll was the principal change found post mortem, where during life there had been extensive bullous eruptions. Bullous eruptions are fairly

* *Deutsch. med. Wochensch.*, No. 7, 1886. Joseph reported the same cases elsewhere.

† Leloir, *loc. cit.* Two recorded by Schwimmer in his *Die neuropathischen Dermatonosen*, cases 13 and 14, p. 148, *et seq.*; case 12 is also interesting; one by Meyer of Strasburg, in Virchow's *Archiv*, November 5th, 1883, full abstract in *Brain*, January 1885.

common with chronic myelitis and acute spinal meningitis. Balmer* gives three instances in which pemphigus occurred in progressive muscular atrophy, but there is no proof that the lesion in the cord was limited to the anterior cornua. Mitchell gives several instances of bullous eruptions following nerve injuries, those setting up neuritis being chiefly to blame; where the nerve is completely paralysed, bullæ occasionally form after exposure to heat or cold, or the like, and the early and late bullous eruptions of leprosy afford examples of disease of the nerve, producing similar effects.

Déjerine, Quinquaud, Leloir, Jarisch, and Mott † found degeneration of the peripheral nerve ends in five cases of pemphigus, but in all there were central changes as well. Still the evidence goes to show,—that bullous eruptions may occur in connection with, and probably indirectly due to, lesions of the nervous system situated anywhere from the centre to the periphery of the sensory tract, though similar lesions are much more frequently found with no bullæ; and that irritative lesions have much more effect than paralytic ones in their production, an external excitant being necessary in paralytic lesions, in which also the bullæ are solitary or few in number.

Pathology.—Although falling far short of proof, the frequent association of nerve lesions with bullous eruptions is strongly in favour of the nervous system being, at least indirectly, responsible for the production of pemphigus, and this is to some extent corroborated by the efficacy of arsenic in its treatment. What the nervous defect is, it is impossible to do more than conjecture, but it lies probably in the vaso-motor centres, and Schwimmer and others regard it as a trophoneurosis. Hypothetic as these views are, others which regard the disease as due to excess of ammonia in the blood (Bamberger), defective kidney elimination, etc., rest upon a much more slender basis. Most authors regard the actual formation of the bulla as due to an inflammation of the papillary layer, with outpouring of fluid from the vessels, but Auspitz calls it an acantholysis, or loosening of the prickle-cell layer, by the sudden escape of fluid from the vessels, destroying the young prickle cells and lifting up the epidermis as a whole. Any inflammatory phenomena, he thinks, are secondary.

* Balmer, *Archiv für Heilkunde*, 1875, p. 317.

† In a case of Sangster's read before Med. Chir. Soc., *Brit. Med. Jour.*, June 16th, 1888.

Anatomy.—The anatomy of the bulla has been investigated by, among others, Haight, Hebra, Kaposi, in Germany, Déjerine and Leloir in France, and by myself, and the contents have been analysed, with varying results, by several observers. In the main, the contents represent blood serum, and a few leucocytes, even when it is clear, and many may be found when it is turbid. Gibier has found micro-organisms in the fresh bullæ of acute pemphigus and in the urine; according to him, they are beaded organisms, consisting of two to twenty individuals joined together in the adult state, and of rounded granules isolated or grouped in the young state. In a case of subacute recurrent pemphigus in a child, I found a few micrococci in recent bullæ, and under cultivation in peptonised gelatine, minute

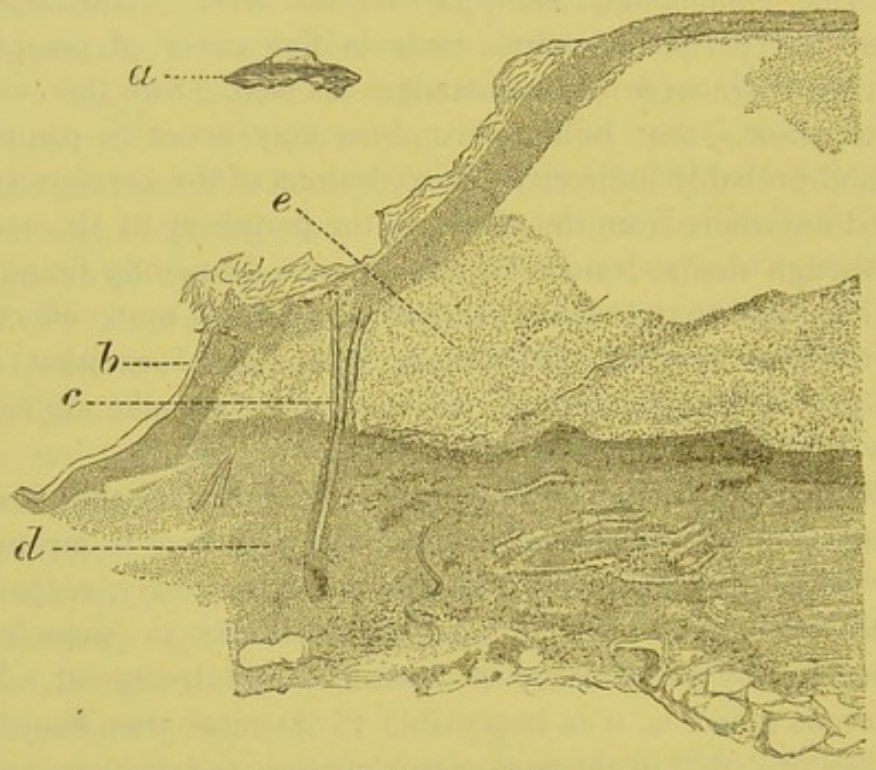

Fig. 15.—Pemphigus bulla. × 50.

a, natural size of bulla; *b*, whole thickness of epidermis lifted up to form the roof of the bulla; *c*, sweat duct traversing bulla; *d*, enormous round cell infiltration of the upper layers of the corium; *e*, coagulated albuminous contents of bulla.

bacilli developed. Thin, on the other hand, in one case failed to find them after repeated search. What *rôle* they play must be left for future investigation to decide. The chemistry of the contents is uncertain; generally feebly alkaline in reaction, it is occasionally slightly acid from acetic acid, it is said. Albumen and phosphates are always present, but lactate of soda, chlorides, cholesterin, ammonia, and urea, uric acid, leucin, tyrosin, etc., have been described in different instances, but their very variability negatives the idea of their being of any etiological importance.

German observers agree fairly well in the anatomy, and state that the papillæ below the bullæ are infiltrated with serum, which forms wide spaces in the papillæ and above them. The fluid stretches the rete cells

into long meshes, the trabeculæ of which soon rupture as the fluid accumulates, and form a single cavity, its roof consisting of only the most superficial strata of the horny layer, from the under-surface of which stalactite-like processes of epithelium depend, which are the linings of the follicles torn out by the raising of the surrounding horny layer. They say that in the superficial position of the bulla, pemphigus differs from other vesicular eruptions, such as herpes and eczema, but my own observations on a bulla a quarter of an inch in diameter differ from those of the German observers, and agree with those of Robinson of New York.

By examining sections made from the edge to the centre of the bulla, it could be ascertained that the bulla was not superficial, but the fluid poured out stretched the lower rete cells until they were separated from the corium, and, as the process continued, the lower layers were destroyed and the upper compressed until, at the centre, the roof was formed by the horny layer and about the upper two-thirds of the rete, with here and there a fragment of a sweat duct or hair follicle depending. At the border, the lower stretched cells of the rete were still present. The fibres of the corium below the bulla were compressed, and there was free cell-infiltration of the upper layers (fig. 7). Robinson, however, found that in other bullæ the fluid was between the rete layers, and the horny layer was unchanged, while the papillæ, corium, and subcutaneous tissue were infiltrated with leucocytes, and the blood vessels were dilated. No general statement as to the position of the bullæ can therefore be made in the face of such discrepancies, and probably it varies with the age and size of the bulla and in different instances. There is no scarring except in rare cases (Steiner saw it once). Déjerine and Leloir describe a parenchymatous neuritis of the nerve endings beneath the bulla in some cases, but not in others, and since such nerve changes are not usually found in inflammatory lesions, they are disposed to attach a primary or causative importance to them, but it is a question how far these nerve changes were secondary to others higher up in the nervous system. Various changes have been found in the internal organs, but nothing constantly or even frequently enough, except as regards the nervous system, to make one regard them as otherwise than fortuitous.

Diagnosis.—In chronic pemphigus, the bullæ appearing in crops at short intervals, without apparent cause, antecedent symptoms, or lesions, or at most only hyperæmia of the skin, the process continuing for weeks, months, or years, constitute the most distinctive features, and such cases offer no difficulty in diagnosis, but P. acutus has to be distinguished from those diseases in which bullæ occur as an accidental feature, so to speak, such as erythema bullosum and urticaria bullosa, or where the bullæ form instead of vesicles, as in varicella bullosa, impetigo contagiosa, eczema, herpes, pompholyx, or where the bullæ, though pretty constant, form only a part of the eruption, as in hydroa, herpes iris, etc.

In P. acutus, there is no antecedent lesion, as in P. chronicus, but there may be smart febrile symptoms, and severe constitutional disturbance. In bullous *erythema exudativum* and *urticaria*, in *hydroa* and *herpes iris*, the other lesions present give the clue to the diagnosis. *Erythema exudativum* and its ally, *herpes iris*, generally run a definite course of a few weeks; and while some febrile symptoms may be present, they are rarely severe. The erythema papule or nodule, also, always precedes the formation of the bulla which forms on it. In *herpes iris*, the central bulla with the rings of varying hues are diagnostic. In *urticaria bullosa* again, the bulla appears on the wheal, and the intense itching and tingling would distinguish it from anything but P. pruriginosus. In this last also, wheals appear, but they are the secondary lesion, and only develop after the disease has existed for some time. Moreover, the bullæ are not always formed on the wheal, as they are in urticaria bullosa, though such is the case sometimes. The diagnosis from hydroa herpetiforme is given under that disease.

In *varicella bullosa*, the fact that it was epidemic, the short, favourable course, and the co-existence of cases of the usual type would be sufficient.

P. foliaceus has to be distinguished from other forms of universal dermatitis, such as general eczema, pityriasis rubra, lichen ruber universalis.

It resembles a general *eczema rubrum* very closely, but in P. foliaceus the crusts are mainly epithelial and of large size, while in eczema they are chiefly composed of dried exudation and not often large. Although the exudation may be continuous, it is much less than in eczema of corresponding severity. Moreover, a universal distribution of eczema is extremely rare, while it is the rule in P. foliaceus, if it has lasted long. Whenever, therefore, what appears to be a universal eczema is present, the probability of its being P. foliaceus should be borne in mind, and daily observation will soon establish the presence or absence of the characteristic large flaccid bullæ of the P. foliaceus eruption, and all doubt is then set at rest. The existence of the bullæ and the presence of discharge will prevent confusion with *pityriasis rubra or lichen ruber*, which are both dry diseases, though the resemblance is great in certain parts when the bullæ have temporarily ceased to be evolved, but in pityriasis rubra the scales are thin and papery, while in P. foliaceus they are

comparatively thick. In *lichen ruber*, there is great thickening of the skin and moderate scaliness, and the characteristic papules are always to be found in some part or other. *P. vegetans* differs from P. foliaceus in the ulceration, the papillary hypertrophy, the mouth affection, and the absence of universality.

Prognosis.—The fate of pemphigus patients varies greatly, and we possess but few data to enable us to anticipate it.

The majority of P. chronicus cases get well in the course of weeks or months, if judiciously treated, though several recurrences in future years must be expected. A few persist for an indefinite period, for years or even for life, and of them a certain number may lapse into P. foliaceus. Many of these may lead to the death of the patient by exhaustion or by laying him open to intercurrent disease. Which of these several courses the disease will take, we are wholly unable to predicate ; the longer the eruption lasts, the more gloomy is the prospect. If the patient is advanced in years, the prognosis must be guarded, as he not infrequently does badly, sinking into a typhoid condition. The presence of albuminuria is another bad element, and when the characters of the bulla are of the destructive order (P. crouposus, diphtheriticus, or gangrænosus) the outlook is especially bad. Except when the disease is of this kind, the pemphigus of infants and children is usually amenable to treatment. P. pruriginosus is very chronic, and there is no knowing how long it will last. The danger of P. acutus is in proportion to the extent of skin involved and to the constitutional disturbance, which may be so great as to destroy life in a week or two.

P. foliaceus is almost invariably fatal,* though the cases often last for many years. Sherwell reports the case of a girl æt. seven, who recovered from typical attacks in 1877 and 1878, in which linseed oil, outside and in, appeared to be of benefit. She remained well until 1889, when she had a milder and less typical attack, which lasted less than three weeks. The age of the patient is as exceptional as the other features, all other cases having been adults. A case from Unna's clinique, a man æt. forty-one also recovered ; he had continuous baths of sulphate of iron and tannic acid—*i.e.*, ink !—to which his recovery was ascribed. P. vegetans is almost as lethal, and more rapid in its course, but early treatment before the skin is much involved offers some chance of recovery.

* *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vii. (1889), p. 453 ; *Brit Jour. Derm.*, vol. iii. (1891), p. 357.

Treatment.—In the majority of cases of chronic pemphigus, the internal administration of arsenic in some form is the most reliable treatment. It should be given in small doses at first, such as two or three minims of the liq. arsenicalis, increased until it appears to have a hold on the disease, or until the limit of tolerance of the patient is reached. I am, however, far from giving it the title of "specific" that Mr. Hutchinson assigns to it; it approaches most nearly to the position he claims for it in the case of children, but fails in many older persons, and frequently controls without curing the disease. It should never be given where the digestive organs are not in a healthy condition, nor where there is any defect of health which can be detected and otherwise treated. In many instances quinine in large doses, iron, cod-liver oil, and general hygienic measures, such as a strongly supporting diet, a bracing climate, with rest of body and mind, as far as that can be secured, effect a cure when so-called specifics fail.

Locally, dusting powders, such as oxide of zinc, and starch, are often useful; but on the whole, in my experience, lotions, such as the lactate or glycerole of the subacetate of lead (one to six water) or calamine liniment, give most relief from the feeling of tension and soreness, but local applications have no curative effect.

In acute pemphigus, it is very doubtful whether internal treatment has any effect; indications for treatment should be carefully sought after and vigorously followed up, but they are too often absent, and all that is left is to combat adverse circumstances as they arise, with a general supporting treatment from the first, in anticipation of the exhaustion which too often supervenes.

The same local remedies as those recommended for chronic pemphigus give temporary relief.

In P. pruriginosus, the itching may be temporarily relieved by the anti-pruritic lotions recommended for chronic urticaria (Lotions, F. 20 to 38), such as the liq. carbonis detergens, terebene, sanitas, etc. Internally arsenic is not very successful, but in adults, atropia injections of $\frac{1}{150}$ to $\frac{1}{60}$ of a grain might be tried. In P. foliaceus, internal treatment of all kinds has failed entirely, either to cure or alleviate. Local means, similar to that for eczema, give relief and heal the skin temporarily; the oleate of zinc or lead, or boric acid ointments, and the lotions and liniments before alluded to, are some among many suitable applications. Continuous baths of simple warm water, where practicable, give the

most relief; in Vienna, the patients have lived in the baths for months in comparative comfort. In P. vegetans, Hutchinson has shown that small doses of opium, ♏iij to ♏x liq. opii sedativi three times a day, controlled the severe and cured the milder form. It was not tried till late in the disease in his three fatal cases, but was so in my case, but unfortunately without success. My patient experienced great relief from local disinfecting measures, the foul odour having previously pervaded the whole ward. Nearly the whole back being excoriated, she was laid on lint soaked in carbolic oil, one in forty, and another sheet of it applied in front. The papillary growths in the axillæ and groin were freely dusted with iodol, and the mouth frequently rinsed with liq. sodæ chloratæ, and permanganate of potash solution sprayed in, several times a day. By these means all fœtor was removed and the patient made much more comfortable. Obviously, such a patient should be placed on a water-bed from the first, and the dressings not changed more frequently than is absolutely necessary, as every movement gives pain.

HYDROA.

Deriv.—*ὕδωρ*, water, or more directly *ἵδρωα*.

Hydroa was a term used by many of the older dermatologists for various bullous and vesicular eruptions, and had fallen into disuse until revived by Bazin for certain groups of bullous eruptions which, in their clinical aspects, stand midway between erythema multiforme and pemphigus; but some of them are separated by a very narrow line from some forms of pemphigus, such as P. pruriginosus.

Recognising that there were such eruptions hitherto unclassed, many French, English, and American dermatologists have taken up the term, while the German school for the most part ignore it.

Hutchinson* used the term for a bullous eruption produced by iodide of potassium, but such an eruption scarcely requires a separate name; Bazin† proposed three varieties—H. vésiculeux, H. bulleux, and H. vacciniforme. It was subsequently acknowledged, even by Bazin himself, that H. vésiculeux is the disease

* *Sydenham Society's Atlas*, coloured plate, No. xxxiii.

† *Affections Cutanées Arthritiques*, pp. 194, 261, and 403.

that Bateman described as erythema and herpes iris ; it has therefore no *raison d'être.*

H. bulleux is only one phase of H. herpetiforme. H. vacciniforme or æstivale will be described after H. herpetiforme.

HYDROA HERPETIFORME.

Synonyms.—Dermatitis herpetiformis (Duhring) ; Pemphigus pruriginosus (Chausit and Hardy) ; Herpes gestationis (Milton and Bulkley) ; Herpes circinatus bullosus (E. Wilson) ; Pemphigus circinatus (Vienna School).

Definition.—A vesicular or bullous eruption associated with erythema lesions, and intense itching.

In the first edition of this work H. vacciniforme had not been identified, and there was therefore only one variety left, which it was proposed to call simply Hydroa. The recognition of H. vacciniforme necessitates the addition of the qualifying term chosen by Tilbury Fox.

It is only quite recently, chiefly through Tilbury Fox,* and, more recently, Duhring,† in some very able papers on dermatitis herpetiformis, that we have been able to gain a clear idea of this protean disease. More than a score of these cases have come under my observation within a recent period, so that the disease is probably not so rare as it has hitherto been considered. Unfortunately, the great variations in its clinical aspect have led different authors to regard these variations as different diseases, and to give them different names, according as one or other feature struck them most.

Symptoms.—It may or may not begin with shivering and slight febrile symptoms ; often the first symptom is only itching, where the eruption is about to appear. The eruption is bilateral, and in the main symmetrical, situated most frequently on the flexor

* Fox, "A Clinical Study on Hydroa," posthumous paper in *Amer. Archiv. of Derm.*, vol. vi. (1880), p. 16.

† Duhring, "Dermatitis Herpetiformis," *Jour. Amer. Med. Assoc.*, August 30th, 1884, and several subsequent papers in *N. Y. Med. Jour.*, 1884 and 1887, and elsewhere. Also "Hydroa," *Brit. Med. Jour.*, May 22nd, 1886, a general view of the subject by myself. See also "Dermatite Herpétiforme," a valuable monograph by Brocq, *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 1, etc.

surface of the wrists, or on the abdomen or ankles, and is, as a rule, most abundant on the flexor surface of the forearms, the front of the trunk, especially the abdomen, the buttocks and outer part of the thighs ; the legs below the knee are comparatively free, but no part is quite exempt.

The eruption, in a typical case, first appears as slightly raised, flattish, rose-red papules about a quarter of an inch, which speedily enlarge to patches of about half an inch in diameter, the centre of which soon becomes depressed, and changes to a purplish hue ; at the same time the patch extends at the periphery *pari passu* with the enlargement of the centre of involution, and so a circle is formed with a raised red margin and a flat purplish centre. This part of the process closely resembles an erythema papulatum passing into an erythema circinatum, but differs from those diseases, inasmuch as severe pruritus attends its evolution ; circles, or segments of them, may also be formed by the aggregation of papules in this form. When the circle has reached to an inch or more across, which it may do in a day or two, the vesicular and bullous elements usually appear. These vesicles, as a rule, develop on the spreading border, or on the aggregated papules, varying in size from a pin's head to a pea, or larger ; but in some cases bullæ, one inch or more across are numerous, and sometimes the centre of the vesicular erythematous circle is occupied by a bulla, the whole patch resembling, except in colouring, a herpes iris. The erythemata may continue to spread beyond the vesicles, and, reaching other lesions, cover a large area. Vesicles and bullæ may also arise singly or in groups, independently of the erythema, being vesicular from their first appearance ; moreover, the erythematous lesions do not all go on to vesiculation. On the development of the bullæ or vesicles, the itching ceases, a feeling of burning or tension taking its place, which is only relieved when the contents of the bleb are evacuated ; but like herpes vesicles, they do not rupture spontaneously. The contents are usually quite clear, but sometimes become purulent, and in one case, micrococci were readily grown by me from the clear fluid of a bulla, introduced into gelatine peptone.

Although there are exacerbations at intervals, there are no complete remissions, fresh erythematous and vesicular lesions developing almost daily. Erythema, vesicles, bullæ, and pustules may be simultaneously present in different parts of the body.

The course of the disease is long and uncertain, lasting months, or even years, unless controlled by treatment, and relapses or recurrences are the rule. In very chronic cases, therefore, the constant scratching may entail the usual consequences, though as a rule "the scratched skin" is but little developed, considering how bitterly the patients complain of the itching. The loss of rest wears out the patient greatly, but fatal cases are rare. Besnier and Brocq record concomitant tylosis palmæ et plantæ, as already described in pemphigus.

Variations.—Where all is variety, it is difficult to say what is a typical case and what a variation; nevertheless, while the preceding is a fair account of a severe case, there are great differences in appearances, according to the predominance of the erythematous, vesicular, bullous, or pustular elements. Occurring in or after pregnancy, it is the "H. gestationis" of some authors; once it has appeared, it recurs usually with each succeeding pregnancy, being sometimes the earliest indication to the patient of her condition. It then continues throughout child-bearing, a violent outbreak ensues a few days after delivery, and then it gets well, either at once or gradually, by the attacks becoming of diminished severity until they reach the vanishing point. Such was the case of Emma H., æt. thirty-four, in whom it recurred in three successive pregnancies. It may, however, begin at any period of pregnancy, or soon after it. Sometimes the erythematous element is so predominant that the vesicular part may be overlooked. Thus in Henry N.,* æt. twenty-nine, in whom the disease had existed only a month, beginning on the flexor surface of the forearm, the eruption extended unequally over the whole body, except the scalp, and consisted entirely of itching erythematous papules, patches, and circinate forms; vesicles one-eighth of an inch across existed on the palms only; he speedily recovered under treatment. In Samuel P.,† æt. forty-five, bullæ, without preceding erythema, developed on the ankles and dorsum of the feet only, while on the trunk and wrists, there was an exclusive development of the usual erythema forms; he got well under treatment in about six months. In Frank W., æt. four, flat hemp-seed to pea-sized erythema papules appeared on the abdomen and thighs, and circinate and gyrate patches, from half to one inch in diameter, developed from these; one gyrate patch extended from the pubes to the

* O.P., 1885, No. 139. † O.P., 1885, No. 96.

umbilicus, slightly scabbed from scratching. This erythema continued several weeks, with the accession of fresh papules from time to time, but no vesicles, and then an outbreak of vesicles, grouped and scattered, appeared on the lower limbs, with a ringed erythema interspersed. Attacks of this kind, and also of the circinate erythema, continued at intervals for between two and three years, but there was seldom erythema alone after the first; occasionally there were pustular instead of vesicular elements. Again, in a woman æt. forty-four, the typical rings and segments of circles of papular erythema, attended with moderate itching, came out in crops, but there was no vesiculation at all throughout its course of three or four months. I have also seen a case in which, with all the other symptoms present, itching was absent: this is very exceptional.

On the other hand, the bullous element may be the prominent feature. Thus in a youth of eighteen under my colleague, Dr. Barlow, bullæ an inch or more in diameter were present, more or less all over, beginning as small vesicles and rapidly enlarging to various sizes; from time to time, crops of erythematous lesions of the usual type came out symmetrically, and on these, vesicles might or might not appear, and rings of vesicles with central bullæ sometimes were seen; a few of the vesicles became purulent. In other cases, the vesicles remained very small. This man was under my observation for years, with annual recurrences, sometimes slight, sometimes severe, and with every variation in size of the vesicles or pustules, and in the proportion of erythema.

Some cases look like a universal herpes zoster, for which they are sometimes mistaken; others approach to the ordinary pemphigus type, and if the bullæ are in circles they are reported as pemphigus circinatus; others, again, as persistent erythema circinatum.

When the pustular element is much developed,* Duhring considers it the impetigo herpetiformis of Hebra, which he therefore regards as only a phase of H. herpetiforme; but to this view, comparing the cases related by Duhring, in support of it, with those of Hebra and Kaposi, I cannot subscribe without further evidence of their identity.

Hallopeau† has related an anomalous case of chronic pustular

* *Medical News*, June 2nd, 1883.

† Plate vii. of the *International Atlas*.

eruption in groups, spreading peripherally. Crops of miliary vesico-pustules and red patches, formed either in or round old foci, increased peripherally, attended with intense pruritus, forming circles or gyrate patches, clearing in the centre with some papillary hypertrophy, finally leaving only pigmented spots, the general health being good throughout. The disease was seated chiefly in the pubic region and groins of a man of fifty. A somewhat similar case is recorded by Hudelo and Wickham.

H. Bulleux, or, as Fox preferred to call it, **H. Pruriginosum**, is a very rare form, and is attended at its development with intense itching, and sometimes preceded by slight febrile symptoms, followed by the formation of small bullæ not exceeding the size of a split pea, and commencing as vesicles, without any antecedent lesion. They increase in size, with the contents clear at first, but becoming turbid in a few hours. As the contents get absorbed slight umbilication is produced, and ultimately the bulla dries up, leaving a thin, leafy scale, or, if scratched, a blood crust; or where many bullæ have coalesced, foliaceous crusts, something like P. foliaceus, and when these are thrown off a hyperæmic, subsequently pigmented, surface is left. The eruption comes out in a succession of almost continuous crops, the bullæ being discrete or grouped irregularly, but never in circles. It may be partial or general, affecting even the palms and soles, but more abundant in some parts than others, and with free intervals. But the disease does not always begin with bullæ of the preceding characters; thus Fox's case* began with a circinate erythematous eruption, like that already described. In another case, bullæ of the ordinary pemphigus type developed on the feet, and the small bullæ came out subsequently; on the other hand, G. Fox of New York published a case† which began as a herpetiform eruption, and lapsed into a pemphigus.

Brocq divides these cases into different groups of acute and chronic pruriginous polymorphous dermatitis, and places herpes gestationis in a third group; but there are intermediate links of

* Case 7 of Tilbury Fox's paper, *loc. cit.*, which was also under my observation throughout its whole course. A subsequent attack is recorded by Sangster and Bruce on "Rare Form of Itching Vesicular Eruption, (?) Hydroa Bulleux," *Med. Times and Gaz.*, January 5th, 1884, with distinctly herpetiform features.

† *Archives of Dermatology*, July 1878, p. 211.

every kind, and I have seen exactly the same lesions in a pregnant woman, an elderly spinster, and in a man; the pregnancy is, therefore, only one element in the etiology.

Etiology.—Our knowledge is insufficient to allow of many positive general statements being made. Bazin lays stress on the presence of a gouty predisposition; but my experience does not lend much support to this. Exposure to cold has seemed an exciting cause sometimes; and nervous exhaustion from worry, anxiety, loss of rest, etc., is probably a predisposing influence.

Age.—All the cases of H. bulleux have hitherto been in adult males; but H. herpetiforme occurs in both sexes, probably being most frequent in women, and least often in children. The case above mentioned, æt. four, is the youngest I have met with. The oldest case I know of was one of my own, a man æt. sixty-seven. It is, however, most common in young and middle-aged adults.

Its occurrence during pregnancy, and recurrence with several succeeding pregnancies, show that there is some etiological relationship, probably reflex irritation of the vaso-motor centres; and the irritation of these centres, either direct or indirect, is the most probable pathology, so that this brings it close to pemphigus vulgaris, the difference being more clinical than pathological.

Diagnosis.—The most distinctive features are the occurrence of severely itching, circinate, and papular erythematous lesions, with vesicles and bullæ, which have a tendency to group.

It is most likely to be mistaken for pemphigus, especially pemphigus pruriginosus, and bullous forms of urticaria and erythema exudativum. The extreme itching is sufficient to distinguish it from the ordinary forms of *pemphigus*, and in the case of H. bulleux the bullæ are of small size.

From *pemphigus pruriginosus* there may be some difficulty, but the mistake would not be of great practical importance. As a rule, the bullæ are smaller in hydroa, but this is not reliable. In pemphigus pruriginosus there are no erythematous lesions at first, and when wheals subsequently form they are not symmetrical; the vesicles and bullæ tend to group in hydroa, not in pemphigus pruriginosus. The monomorphous character of the latter is the most reliable feature.

In *urticaria bullosa*, there would not be the symmetry in the lesions which is observable in the erythema of hydroa, nor yet the tendency to group and take circinate forms.

In *erythema bullosum*, there is not severe itching, and there would be no bullæ or vesicles arising independently of the erythema.

The erythematous cases, in which there are no vesicles for a long time, would naturally be mistaken for erythema exudativum circinatum. The persistently recurring exacerbations, and the far greater itching than that of ordinary erythema, should excite suspicion until time and vesicles come to our assistance.

Prognosis.—The disease, if judiciously treated, will get well in a few months, but tends to recur in future years, the attacks becoming weaker and eventually ceasing, which is very much the course of ordinary pemphigus.

Treatment.—Place the patient in as favourable a position as his circumstances will admit of, so as to avoid over-work, whether of body or mind, or exposure to worrying conditions. The state of the digestive organs must be inquired into, and if necessary treated; a highly nutritious and easily digestible diet ordered, alcohol restricted, and sometimes avoided altogether; change to a fresh bracing air, if possible, should be arranged, and tonics given suited to the patient. Fox prefers quinine in large doses, 2 to 10 grains; and I, also, have found it efficacious in some cases. Cod-liver oil is generally desirable. I have, however, found arsenic the most generally effectual, but it is powerless as a rule until 8 or 10 minim doses of the liquor arsenicalis, or, in some cases, the limit of the patient's tolerance of the drug has been reached. Then the bullæ cease to develop in such numbers, or there are longer intervals, and ultimately the eruption ceases altogether. This is usually attained in a month or six weeks, but it may require a longer course. When arsenic has failed, belladonna has sometimes succeeded; it, also, must be given in full doses, beginning at 15 minims and increasing up to 30 minims, or more, of the tincture three times a day. Should there be distinct evidence of the gouty diathesis, alkalies, colchicum, and diuretics, especially acetate of potash, would be appropriate.

Locally, baths of sulphide of potassium, ʒij to ʒiv to 30 gallons; alkaline and bran baths, with or without liq. carbonis detergens, frequently give great relief, and if taken at bedtime will promote sleep, which is usually otherwise much disturbed. Dusting powders of starch and zinc, and sometimes of kaolin and a small quantity of creasote, are useful. In other cases, lotions are preferable; those of calamine and lactate of lead are good, but generally

the liquor carbonis detergens ʒij to ʒviij, or other anti-pruritic agents (Lotions, F. 20 to 38), are the most reliable, and by obviating the necessity of scratching, materially facilitate the return to health. Duhring found that sulphur ointment gave great relief in some cases. Where practicable sulphide of potassium baths, ʒij to the bath, would give relief, and Harrogate, Strathpeffer, or Aix-la-Chapelle would be indicated among the spas. Schwimmer believed that thiol lotion cured a case, but it has failed in others. It must be remembered that some cases improve when they are kept in bed at one temperature.

HYDROA VACCINIFORME SEU ÆSTIVALE.*

Synonym.—Recurrent summer eruption (Hutchinson); Hydroa puerorum (Unna).

Definition.—A recurring summer eruption of boyhood, usually with vesicles, which leave scars.

Bazin was the first to describe this disease; but owing to its variety and rarity, and his description applying to one phase of it only, it has only recently been identified. Hutchinson made his description independently, but much later; Allan Jamieson has reported two cases, Unna two cases and three more by hearsay, Handford one case; I have had two cases—one a boy of fourteen, in whom the disease began at five and a half, the other æt. nineteen, began at seven. The first one corresponds with Bazin's description; in the second, the vesicles were not vacciniform. Bazin's description, from a single case, though he subsequently saw others, is as follows: "It appears after exposure to much wind or to the sun. There may be slight malaise or anorexia, and then the eruption comes out on the uncovered regions, such as the nose, cheeks, wrists, hands, and then other parts, including sometimes the mucosa of the mouth. Red spots first appear,

* *Literature.*—Bazin, *loc. cit.* Hutchinson, *Clin. Soc. Trans.*, vol. xxii (1889), p. 80, with chromolith. Jamieson, *Diseases of the Skin*, 3rd ed., p. 172,—these cases were originally reported as xeroderma pigmentosum, *Lancet*, vol. ii. (1888), p. 33. Unna, *Monatshefte für prak. Derm.*, August 1889, p. 108. Handford, *Illustrated Med. News*, vol. 1889, with good coloured illustration of phase Bazin described. *Brit. Jour. Derm.*, vol. iv. (1892), p. 128,—a good abstract of Buri's case, with comments by Brooke.

on which rounded vesicles, like those of herpes, spring up. On the second day, distinct umbilication is produced; then the contents become opaque, and resemble a small-pox or a vaccine pustule; each dries up into a crust from the centre toward the circumference, and when the crust falls off leaves a depressed cicatrix; these scars, when numerous, give the aspect of antecedent small-pox. When the sero-pus is abundant, the crusts are thick and yellow, like impetigo. Successive crops prolong the eruption for months, and recurrences from change of temperature are frequent. Arthritic symptoms often precede the eruption."

The disease generally begins in the first, second, or third year of life, though it may be later. The eruption develops chiefly on the uncovered parts, and is generally preceded by burning or pain, fullness but not itching of the region attacked, and by some general discomfort, anorexia, sleeplessness, etc. Then the red spots appear, and on these, rounded vesicles develop singly or in groups like herpes. These vary in size from a millet seed to a large pea if discrete, or they may coalesce into an irregularly outlined flattish bulla; the redness remains as an areola. These lesions may follow three courses: the vesicles may dry up in a day or two, leaving a thin scab; or they may rupture and leave a yellowish crust; or the larger vesicles sink down, and dry in the centre into a thin red scab, surrounded by a ring of fluid, and may enlarge slightly in this form, and closely resemble a vaccination vesicle, having even dissepiments, so that a single prick does not empty it. It is to this phase, that Bazin's name applies. In either case after the scab has separated a reddened, slightly depressed scar is left, which eventually gets white, but is indelible, so that the patient looks as if he had had small-pox. Occasionally, the lesion is arrested at the erythematous stage, and then scarring may be avoided, but it is generally a very marked feature. The individual lesions develop and decline in three or four days, but the time of the falling off of the scab is variable according to its depth. The whole attack lasts from two to three weeks, as all the groups do not develop simultaneously, and all phases may sometimes be seen together. Itching is never a prominent feature. The favourite regions are: the face, especially the cheeks and nose; the ears, which are so severely involved as to be often reduced to mere cicatrised gristle; the neck, especially at the sides; the back of the

hands ; and less frequently the extensor aspect of the arms and forearms, and even the legs. Other regions are occasionally involved, and it has been pretty general, but with only a sparse distribution of the diseased foci. The patient is liable to recurrences from spring to autumn inclusively, few attacks occurring after October and before February. The worst are in the hot months, the sun being a powerful developing factor, and the wind almost as irritating, the eruption often breaking out a few hours after exposure. The attacks get milder at puberty, and generally cease by the time the patient is grown up.

Etiology.—All the cases hitherto recorded have been boys ; all have commenced in early childhood, generally under three years, but both of mine began later, and a case of Jamieson's began at thirteen. All tend to get well towards manhood. All have their attacks worst and most exclusively in the summer; not only sun but artificial heat and cold winds are efficient excitants, and in one of Unna's cases cold and sea baths would produce an attack. Three brothers of one of Unna's cases were said to have suffered in the same way, but it must be admitted that Unna's cases differ somewhat from the others in several respects, one important difference being that the vesicles and bullæ were quite superficial and left no scar, and often the lesions stopped short at an early stage, or remained as papules.

Pathology.—This is unknown ; it is presumably a vaso-motor neurosis, and a congenital susceptibility to external irritation may be assumed, but this does not take us very far.

Diagnosis.—The most striking features are the onset in early life, and the annual recurrences in the warm season of the year, especially after exposure to the sun and wind. The lesions occur symmetrically on the exposed parts, are vesicular in type, single or herpetiform in distribution, with a tendency in the large ones to dry from the centre towards the periphery, and for all to leave indelible scars. There are only a few scar-leaving eruptions which could give rise to error, viz., strumous disease of the skin, lupus vulgaris, lupus erythematosus, and syphilis. The symmetry of the scarring would at once show that it was not strumous, or lupus vulgaris, and while this would not be true of lupus erythematosus, in which, too, the ears are often involved, that disease rarely occurs in childhood, is generally worse in the winter, and never has perfectly free intervals, and of course never

develops with vesicles after exposure to the sun or wind. Hutchinson and Jamieson see a resemblance to xeroderma pigmentosum. The points of resemblance are the onset before three years old, the malign influence of the sun, and the distribution on uncovered parts; the last point of resemblance is more apparent than real, as the distribution of xeroderma pigmentosum is very exact, accords with that of many other diseases, and extends beyond the area of exposure and corresponds with a vascular area governed by certain vaso-motor centres, while in hydroa vacciniforme the area of disease does not extend beyond the parts exposed; other differences are—

Hydroa Vacciniforme.	Xeroderma Pigmentosum.
Affects boys only.	Both sexes.
Course intermittent.	Slowly progressive.
Tends to improvement and spontaneous cure.	No tendency to improvement, but to malignant growths and death.
Lesions are vesicular and leave scars from inflammatory destruction.	Lesions are pigment spots, flat warts, atrophic scarring, telangiectases and new growths.
Lesions are excited by sun and other atmospheric influences.	The sun has no special influence after the first freckle-like outbreak, and even then there is no proof that it is due to the sun.

Pustular syphilides in the secondary stage might easily be mistaken for it, but pustular eruptions only occur in severe forms of syphilis, would not be limited to the exposed parts of the body, and other signs of syphilis, past or present, would certainly be present in such a case; then the history and date of onset of the two diseases would be quite different, and there would be no annual summer recurrences. If cases like those of Unna's, in which there was no scarring and the eruption was not limited to exposed parts, are to be reckoned in the same category, the points to be relied on would be: early commencement, annual summer recurrences, especially after sun exposure throughout childhood, the rash consisting of slight pustular erythema and non-suppurating bullæ or vesicles, painful but not pruritic, with slight nervous and

digestive disturbances, such as anorexia and sleeplessness, gradual spontaneous tendency to amelioration at puberty, and cure at manhood.

Prognosis.—This is unsatisfactory. All that can be promised are intervals of freedom in the cold weather, with lessened severity at puberty and cure at manhood.

Treatment.—The prophylactic treatment is obviously to guard the patient from exposure to the sun, and even artificial heat on the one hand, and against cold or boisterous winds on the other. All irritant applications to the skin should also be avoided. Internally, as in other recurrent bullous eruptions, arsenic should certainly be tried, and this failing, quinine or belladonna, or the two combined, are worthy of trial. When the eruption is out, I should puncture each vesicle as early as possible, and apply iodoform powder or paint on a solution of it in æther, and thus hope to avoid subsequent scars. Unna's second case derived benefit from ichthyol soap.

After rupture of the vesicles or bullæ, the crusts should be softened in carbolised oil 1 in 40, and the exposed surface dressed with acidi borici gr. 20, iodoformi gr. 5, creolini ♏v, adip. benz. ℥j, ft. ung.

There is another class of **Recurring Summer Eruptions** described by Hutchinson * which it will be convenient briefly to discuss here. Since he himself admits that his original name, Summer Prurigo, is inappropriate, as the itching is not the most prominent symptom, the christening may be deferred. The eruption begins in childhood, or even infancy, and recurs annually, in the summer chiefly, but not quite exclusively. In most instances, the eruption is confined to the face, neck, and upper extremities, and is always most developed there; but in the most strongly marked cases, affects the whole body surface, except the palms, soles, scalp, and flexures. It tends to improve when the patient reaches puberty, unless it has begun later than usual, and some of the cases have got quite well when adult life was reached. The eruption consists of pale red conical papules, and in the centre of some are minute collections of clear fluid resembling an abortive acne. They do not, however, tend to become pustules, but generally leave behind

* *Sydenham Society's Atlas*, plate xxxviii., and clinical lecture on "Summer Prurigo." Hutchinson's *Rare Diseases of the Skin*, p. 126. *Clin. Soc. Trans.*, vol. xxii. (1889), p. 82.

minute shallow scars. Slight œdema of the affected limbs may occur at the height of the attack. The papules itch moderately at night, and the scratching may slightly modify the eruption, producing a small amount of scabbing at the apex of the papule. When the disease is of long standing, the scars of successive attacks may produce a general mottled appearance of the surface. In two sisters under my care for six years, one began at the age of seven, the other when nineteen. The eldest got well when she was twenty-six ; the younger was much better at the age of twenty-one. In neither was there any scarring, but the itching was sometimes rather severe.

Etiology.—This is obscure. Both sexes are liable to it, and the disease is one of infancy or childhood. One case followed measles ; one followed shortly after menstruation (æt. eight years).

The *pathology* is unknown, but it approaches nearest to urticaria perstans.

Diagnosis.—The disease resembles hydroa æstivale in being a disease of early life which recurs every summer, and tends to improve as the patient grows up. On the other hand, both sexes are affected. The limitation of the eruption to the exposed regions is less absolute, and the subsequent scarring is very slight in comparison, while itching is more marked. The eruption is simply papular and erythematous, without any vesicles or bullæ, and there is no tendency to grouping of the lesions.

Treatment.—Most of Hutchinson's cases improved under arsenic, though some required doses of six or seven minims. Locally, a lead and mercury ointment was successful in giving relief. In my own two cases, both improved most by attention to the digestive organs, regulating the bowels with alkaline or acid stomachic mixtures as required. The elder had small doses of arseniate of soda at the last, added to the alkaline laxative, with benefit. In the younger and more obstinate case, combating the chronic constipation was the chief element of success.

IMPETIGO HERPETIFORMIS (Hebra).

Definition.—An inflammatory disease, characterised by the formation of groups of small pustules, attended with severe constitutional symptoms.

No case of this disease, that I am aware of, has been recorded in England, and the American cases are regarded as pustular forms

of hydroa herpetiforme. It is mainly to Hebra and Kaposi that we are indebted for what we know of this disease, and from their account, founded on two cases, and from a monograph * by Kaposi, the following description is taken.

The eruption consists of pin's-head-sized, superficial pustules, sometimes isolated, but generally densely crowded into groups half an inch across, often circular in shape, the central pustules of which dry up after a time, while fresh ones are formed at the periphery; by this means, and by coalescence with neighbouring groups, large areas are implicated. The contents are pustular from the commencement, at first only opaque, but later greenish-yellow, until they dry up into dirty-brown crusts, which enlarge by the accretion of other pustules at the periphery. The commencement of the eruption is on the inner side of the thighs and groins, round the navel, on the breasts, in the axillæ, and the oral mucous membrane, where it may even precede the skin eruptions. As fresh groups and isolated pustules are continually developing in crops, the whole body surface may be involved in three or four months; the skin is then hot and swollen, with crusted, fissured, and excoriated patches, here and there still bordered by pustules, and even on the tongue, in one case, were circumscribed grey plaques depressed in the centre.

Rigors and high fever precede the onset of the eruption and of each outbreak, which are immediately followed by a fall of temperature, so that the general symptoms are those of a remittent fever, with dry tongue, inter-current rigors, loose bowels, high-coloured urine, with increased urea, but no albumen until late in the disease. It has ended fatally in all but one case, in which there were many relapses, while two recovered after several attacks, but succumbed to a later one. In eleven cases, the victims were pregnant women, and delivery had no influence for good or evil on the course of the disease. In only three cases, were endometritis and peritonitis found post mortem; the others afforded no explanation of the cause of death. In the twelfth case, a young man under Kaposi,† the disease began apparently as a severe intertrigo,

* "Impetigo Herpetiformis," Kaposi, *Viertelj. f. Derm. u. Syph.*, vol. xiv. (1887), p. 273; highly illustrated with coloured plates. See also "De l'Impétigo Herpétiforme." Dubreuilh, *Ann. de Derm.*, vol. iii. (1892), p. 353, reports another fatal case in a male æt. fifty-three, and gives a general review and list of cases—seventeen in all.

† *Brit. Med. Jour.*, Vienna correspondence, July 1884.

with great general disturbance; it spread over the abdomen, and smaller patches came elsewhere; he gradually sank, and post mortem, there was general peritonitis, with effusion. All the cases are singularly alike in the development and appearance of the eruption.

The pathology is doubtful. Probably it is a disease of septic origin, though this has been actually demonstrated in only about one-third of the cases, and Auspitz has called it **Herpes pyæmicus**. Neumann called it a metastatic pustulosis. Duhring regards it as a phase of dermatitis herpetiformis, but has modified his views somewhat since the publication of Kaposi's paper, and acknowledges that even Heitzmann's case does not correspond with Kaposi's descriptions. Unless the above description gives too narrow a conception of the disease, the diagnosis would not offer much difficulty; successive crops of small pustules in spreading groups, with severe rigors and fever, especially if in a pregnant woman, would be sufficient to characterise it. It resembles hydroa herpetiforme in the groups, the tendency to form circles, and to spread peripherally, but differs from it in the lesions being very small and pustular from the beginning, which is very exceptional in hydroa herpetiforme,* in the absence of erythema and of severe pruritus, and in the presence of severe general symptoms, with a fatal result in nearly all cases. In the last particulars, in the positions most involved, and in the affection of the oral mucous membrane sometimes preceding the skin lesions, it recalls pemphigus vegetans. It should be compared with Hallopeau's case, referred to in H. herpetiforme, with very similar eruption, but mild course.

Treatment.—None has been successful hitherto; continuous baths, where practicable, would give relief, and lower the temperature. Antiphlogistic treatment has been tried in vain. I should be inclined to treat it as pyæmic, and give five to ten grains of hydrochlorate of quinine every four hours, and a highly supporting dietary, with alcohol in some cases.

* Maret, in his "Inaugural Thesis of Strasburg," 1887, and Du Mesnil and Marx, *Archiv für Derm. u. Syph.*, vol. xxi. (1889), p. 657, and in vol. xxiii. (1891), p. 723, publish cases as impetigo herpetiformis, with relapses, but favourable course. If their view is correct, Duhring's contention would be established, but they may well be hydroa herpetiforme with small pustules.

PSORIASIS.

Deriv.—ψώρα, the itch.

Synonyms.—Lepra ; Lepra alphos ; Alphos ; Psora ; *Fr.*, Psoriasis ; *Ger.*, Schuppenflechte ; Psoriasis.

Definition.—A chronic inflammatory disease, characterised by dry, red, primarily roundish patches, covered with imbricated, silvery, adherent scales, occurring chiefly on the extensor surfaces.

Psoriasis is one of the most common diseases of the skin, and in most cases is easily recognisable. It forms about 7 per cent. of all cases in this country, but in Vienna and in America it appears to be less common than in England and France.

There is only one kind of true psoriasis, but many qualifying terms have been given to the variations in its clinical aspect.

Symptoms.—A typical case has well-marked characters. Symmetrical in the main, it selects, in the vast majority of cases, the extensor surface of the limbs, especially the tips of the elbows and knees, and next in frequency, the scalp and trunk. It consists of patches of very variable size, round or oval when small, but irregular when large ; possessing sharply defined borders, so that it stands out prominently from the healthy skin, and is covered more or less completely by imbricated silvery or greyish-white, scaly, adherent crusts, placed upon a slightly raised plateau of a bright red colour at first, but in cases of long standing, of a duller hue. This is best seen when the scales are picked off, which exposes to view a number of bright red dots, which bleed easily, and are the apices of the hyperæmic papillæ. A lens is often necessary to see these red points, and the scales must be completely removed.

The eruption is dry from the commencement, itches more or less, according to its development, and the activity of the hyperæmia. But the irritation is usually much less than in eczema, and there is no pain unless the eruption is over the joints and the movements produce fissuring. Although sometimes due to defective assimilation, debility, or other constitutional defect, in the majority of cases, the patients appear to be in good health, often with bright, clear, ruddy complexions, justifying Hebra's dictum, that "psoriasis is a disease of the healthy."

Its course is chronic, varying, when untreated, from months

to years; but there are nearly always remissions or intermissions. If removed entirely, its recurrence is only a question of time, some patients having one or two attacks a year, while others go free for much longer intervals. The eruption leaves only a transitory redness, unless the patch has been very chronic, is below the knee, or has been treated with arsenic, which often produces dark staining on the site of the patches.

Variations.—According to the intensity of the disease, the size, shape, and stage of the patches, and the amount of scales upon them, etc., the earlier writers made varieties and christened them with different names. These, perhaps, are of some slight use to the specialist to express briefly the aspect of the case, but are useless lumber to the student, and are only explained here as they are still used by some writers.

Psoriasis commences as a small pin's-head-sized flat papule, which speedily becomes capped with white scales (**P. punctata**). The papule enlarges at the margin, and when about a quarter of an inch across looks "like drops of mortar on the skin" (**P. guttata**); continuing to enlarge, discoid patches of various sizes up to about two inches are formed (**P. nummularis, discoidea**). The coalescence of several patches from different centres produces large, irregular patches, or even sheets of eruption, covering the greater part of the limb or trunk (**P. diffusa**), and when all over the body **P. universalis**. The disease may stop for some time, or never go on beyond any one of the stages above mentioned.*

Involution of the disease always commences in the centre; thus in a round patch a ring is produced (**P. circinata**); when it happens in a compound patch, gyrate lines are formed (**P. gyrata**). As the healing process progresses, the ring gets narrower, then broken, and, finally, the broken parts disappear. But upon the trunk, the disease may form rings and festoons from the first, apparently following the normal arrangement of the hair follicles, the component papules, which begin at the follicles, coalescing into rings; and these rings meeting, break at the place of contact and form festoons. In this form, the disease spreads at the margin

* It is very rarely, if ever, absolutely universal, but Hebra seemed to think that such a condition exists. I have never seen a case without some intervals of healthy skin, though I have of course seen many cases which have passed into pityriasis rubra.

as in the patches, but involution goes on *pari passu*, and so the rings enlarge; but the strip of disease is not widened. When a healthy process sets in, the evolution stops, the ring gets broken, and the whole gradually disappears. This ringed mode of development, which is rarely seen on the limbs, was called **Lepra** by Willan.

A few other names remain to be explained. Very obstinate cases, where the skin is much thickened and fissured, with large adherent scales, are **P. inveterata**; where the scales adhere so as to form much raised, conical heaps, **P. rupioides**; where there is a little pus underneath the crusts, a rare event, **P. empyodes.** When psoriasis is more than usually acute, there are bright red patches, less defined at the margin than usual, or there may be large areas; the scales are thin and papery, being thrown off so rapidly, that they have no time to aggregate into masses. The part is hot and tender, itches severely, and very little irritation will produce discharge. This is **P. eczémateux** of Devergie, and is seen mainly on the forearms and legs. Such cases, sometimes go on to pityriasis rubra.

Position, also, modifies the disease. When on the *scalp*, it only leads to loss of hair when it is more than usually acute; as a rule, it interferes remarkably little with the growth of the hair, and the scalp may be patchily scurfy, while on the borders of the hair it is often such a bright red as to be mistaken for eczema; but the abrupt termination of the diseased area, and the absence of discharge, should lead to the right conclusion. When on the *scrotum*, the skin is often fissured with much swelling, redness, induration, and thin secretion; there are tenderness, pain, and irritation.

On the *palms* and *soles* it is rare, and almost invariably associated with manifestations elsewhere; when it does occur there, raised patches with scaly crusts are seldom formed, but the horny layer is thickened in small areas, and by splitting produces whitish worm-eaten looking spots. In one of my cases, without any eruption elsewhere, the palms were covered with small patches about a quarter of an inch across, without much thickening, and covered with a single layer of white scales. The patient had had two or three attacks; had often been accused of, and treated for, syphilis, without effect on the patches, which got well under ordinary psoriasis treatment. The great majority of cases of so-called

palmar or plantar psoriasis are of syphilitic origin, or else are eczema palmare. I have, however, met with one extreme instance, in which it was limited to the left hand for many years, especially affecting the palm. There were heaped-up silvery scales all over the palmar aspect, well-defined scaly patches on the knuckles and wrist, but the disease had never affected any other part except the *right* hand at an earlier period.

The *nails* of the fingers and toes may be affected in varying degree, either alone, or more often associated with the disease elsewhere. Several are usually symmetrically involved, sometimes one, but rarely all, and it may begin at any part of the nail. Sometimes a small patch of psoriasis may be seen underneath the nail, which loses its polish, becomes opaque, thickened, pitted, furrowed transversely, of a dirty fawn or brown colour; the nail splits, breaks, especially at the end, and may get detached from its bed from the accumulation of epidermis beneath it; or the disease, as Mr. Hutchinson well describes it, may "begin by a little patch of discoloration under the free corner of a nail, and the patch extend down one or both sides to the root." The disease may remain limited to this strip of nail, but more often affects the whole to a greater or less degree. All the above characters vary in intensity, from a slight pitting without discoloration, up to enormous thickening and raising up of the nail from its bed even to half an inch in thickness, as in the case of palmar psoriasis just described, a case, in which it may be mentioned, that all the members of the Dermatological Society concurred in its being of non-specific origin.

It must be borne in mind, that the usual appearances may be modified from various causes. Thus, there may be hardly any scales, owing to previous treatment, of which the patient often makes no mention until questioned. Or, in acute cases, the scales are so rapidly formed and thrown off that they have no time to adhere into crusts; or, owing to the presence of unusual irritability, the patches may be scratched into an ecthymatous condition.

In exceptional cases, deep pigmentation accompanies and follows psoriasis where no arsenic has been taken. I have met with one such case in a man with general psoriasis, which seemed on the point of developing into a pityriasis rubra, but was checked in time; the whole of the eruption was a deep sepia tint, which remained after the psoriasis was cured. Brocq met with a case of pityriasis

rubra which became suddenly deeply pigmented, and plate xxxiv. of Neumann's *Atlas* is called psoriasis nigra, but there, it is in small circumscribed patches.

Hallopeau records the converse of this, permanent achromia being left on the site of the patches. Vidal, however, was inclined to regard it as only apparent, and due to a slightly increased pigmentation round the plaque. Temporary achromia after chrysarobin treatment is well known.

In very rare instances, superficial scarring has remained on the site of the patches. I have seen one case following chrysarobin treatment, and in December 1891 Anderson showed to the Dermatological Society a boy æt. eleven, in whom keloid had developed on the site of what appeared to be patches of ordinary psoriasis, to which he had been subject for years. They were most of them in herpetiform groups, from a pea to a bean in size, flat, smooth, white, and only slightly raised. The small ones looked like morphœa spots, but microscopically had a keloid structure; the larger ones had a keloid aspect also. They were not in any way traceable to irritating applications, which Besnier * believed to be the cause of Purdon's † case of keloid following psoriasis.

A far worse complication is the development of epithelioma on one or more plaques of psoriasis, of which Pozzi, Cartaz, J. C. White, and H. Hebra have recorded instances. In White's and Hebra's cases, it followed a warty development of the psoriasis plaque. This warty hypertrophy of the papillæ is much less common in psoriasis than it is in lichen planus.

Children.—Psoriasis in children differs in no way from its manifestations in adults, except that the patches more often remain small; the disease is seldom so extensive or so severe, the face is more frequently and exclusively affected, and the elbows and knees often escape. I have rarely seen anything approaching to a general psoriasis in a child. An hereditary history is, I think, to be more frequently obtained when the disease begins in early childhood.

Etiology.—Age. Psoriasis may occur at any age after three years. It is rare under this age, but I have seen one case æt. two years. Elliot of New York records a case æt. eighteen months, in which the palms and soles were affected; and Kaposi mentions

* Kaposi-Besnier, vol. i., note, p. 559.

† *Jour. Cut. and Ven. Dis.*, vol. i. (1883), p. 203.

one æt. eight months, whose father was also psoriasitic. There is no limit at the other end of life, but it is not common for it to begin after fifty.

Sex.—It attacks both sexes indiscriminately, and rank and occupation have no influence.

Hereditary.—It is certainly hereditary in a considerable number of cases, nevertheless, the children of psoriasitic parents often escape, and it is rare for all the family to have it; I have, however, known five out of a family of seven affected. Like other hereditary diseases, it may skip a generation. Except heredity, we are still in the dark with regard to the etiology of psoriasis; the patients often appear to be the picture of health, even when a large part of the body is covered. In predisposed subjects, it will, however, often be found on careful search, that the patient, though apparently well and complaining of nothing, is not up to his own highest standard of health. Psoriasitic women often have an attack determined by parturition or lactation; and any other depressing influence, *e.g.*, bad feeding, anxiety, etc., may have the same effect. Violent mental emotion, such as fear, grief, or anxiety, has been the immediate antecedent of even first attacks in several instances. It is very rare amongst scrofulous subjects.

Liveing considers gout an important factor, and distinguishes two classes of psoriasis, that of the young and that of the gouty; the latter beginning in adult age, attended with more itching and less scales, and yielding to alkalies and colchicum, such patients lacking the typical clear complexion. Personally, I do not assign a high place to gout as a factor.

Season.—Recent cases are worse in the winter, older cases in the spring.

Gowers * relates three cases of psoriasis following the internal administration of borax in gr. 5 doses for epilepsy, and suggests that there is some etiological relation between them; they were all readily cured by arsenic. This observation is confirmed by Liveing.

An abrasion or other injury will sometimes determine the position of a patch. This may perhaps account for the development of psoriasis on the site of the vaccination lesions, of which two or three instances are reported from France. From one such infant, Destot inoculated himself by scarifying the skin over the

* *Lancet*, October 24th, 1884.

deltoid and rubbing in the scales. In two days, signs of psoriasis appeared on the tip of the elbows, and in a fortnight the disease was well marked. Unna states that a nurse gave the disease to three children under her care. Practically, however, it is not communicable.

Pathology.—The changes found in the affected skin are: (1) Those of moderate inflammation (cell exudation and dilated vessels) in the upper part of the corium, round the hair follicles and sweat ducts. (2) Increased development of the rete layers, except over the papillæ. (3) Great downgrowth of the interpapillary processes, and consequent enlargement of the papillæ. (4) Enormous increase of the horny layers, from premature conversion of the rete cells. Most recent investigators have come to the conclusion that the process commences in the rete, and that the inflammatory changes in the corium are secondary, while others consider that the inflammation is the primary event, and the rete hyperplasia is secondary. Neither theory throws any light on the nature of the pathological factor required to start the process, and of that we are quite ignorant. According to Auspitz, psoriasis is not inflammatory, but due to an anomaly of the cornification process, which he calls a keratolysis.

Anatomy.—The histology of psoriasis has been investigated by myself and by many observers, of whom Wertheim, Neumann, Hebra, and Kaposi on the Continent, Robinson of New York, Thin in England, and Jamieson of Edinburgh may be especially mentioned. All the German investigators adopt the view of psoriasis being primarily an inflammation of the papillary layer. Robinson appears to have examined carefully all stages of the disease, and his views therefore are especially worthy of attention. He came to the conclusion that the disease begins as a hyperplasia of the rete; and Thin, from an examination of the border of a nummular patch, confirms this view, with which also Jamieson and Tilbury Fox agree. I have excised a papule no larger than a pin's head, where there was only a small cap of scales on the apex, and in the neighbourhood of this papule were others, so small as to be unrecognisable by the naked eye, while the horny layers were still affected. I will state briefly what I have observed in these papules and in small patches, and point out any differences in my observations from those of others.

In a pin's-head papule (Fig. 16), the upper two-thirds of the horny layers are raised into a cone, enclosing a space between themselves and the subjacent layers, which are still closely adherent to the rete. The upper layers are as a whole increased in thickness and separated from each other. In some of the meshes thus formed lie round cells, which stain with carmine, and are of the size and shape of nuclei of epithelium, which they probably are. Besides these, which are comparatively few in number,

there are enormous numbers of minute, circular bodies with a central dark spot, which lie in loose clusters between the separated layers, but which also exist in dense masses, lying horizontally in the still adherent horny layers below. Their appearance certainly suggests that they are organisms of some kind, and probably have a mechanical influence in separating the layers. As to whether they are a *materies morbi* of etiological significance, or merely grow there because the tissue is diseased, I am not yet prepared to offer an opinion. Similar bodies may frequently be seen in small masses on the free surface, where there are as yet no papules. Later on, the lower layers get separated like the upper, but in an earlier stage, when the papule is microscopic, the horny layers are unaffected.

The most striking changes are in the rete. There is considerable increase of thickness as a whole, except over the top of the papillæ. The interpapillary part is increased downwards and transversely; this enlarge-

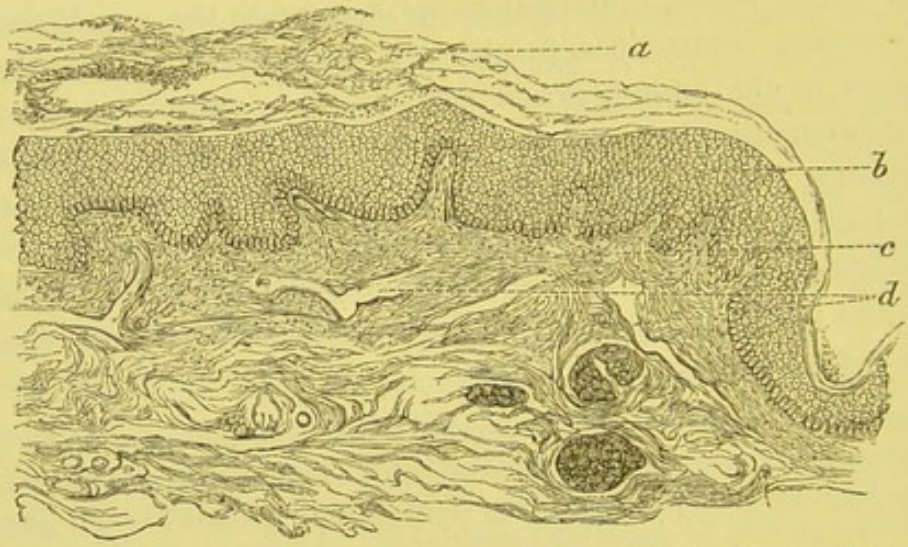

Fig. 16.—Psoriasis. A papule the size of a pin's head. × 125.
a, scaly cap; *b*, rete mucosum considerably thickened; *c*, moderate cell effusion in the papillary layer; *d*, dilated blood vessels. The cell effusion was rather more abundant than is depicted in the woodcut.

ment of their boundaries downwards, produces an apparent increase in the size of the papillæ. The palisade cells are, in some places, evidently proliferating, and their lower ends form fusiform projections into the papillæ. Sometimes, too, they form more than one layer. The rete cells above these also give evidence of proliferation. These changes are most developed in the centre of the papule, and diminish towards the periphery, but do not cease for some distance beyond the papule, and are more or less visible in the most minute papules.

The papillæ appear enlarged both in length and breadth, the blood vessels are slightly dilated, and there is moderate cell infiltration around them, all through the papillary layer. In more advanced patches, the vascular dilatation and cell effusion are more marked. The elevation of the papules is mainly due to this cell and serum effusion. For the most part only the upper half of the corium shows cell infiltration; this is the greatest round

the dilated vessels, especially in the neighbourhood of the sweat ducts and hair follicles; and not only is the infiltration more abundant round the hair follicles, but it often extends to their terminations in the deepest part of the corium. There is also proliferation of the cells of the follicular wall, and consequent finger-like outgrowths analogous to the interpapillary downgrowth of the rete. A hair follicle is very frequently the centre of a papule. Cell effusion extends downwards round the sweat ducts, and the glands also exhibit cell proliferation, blocking up the lumen of the lobules, and producing the appearance of the whole gland being a uniform mass of cells. This is more frequent in the gland than in the ducts. In some, the minute round bodies described as lying between the horny layers can be seen between the lobules of the sweat gland. The sebaceous glands are unaffected. I examined carefully the parts adjacent to the papules, and endeavoured to find whether the process began in the rete or in the corium, but I could never find the rete hyperplasia without the cell effusion, nor could I find cell effusion beyond the rete hyperplasia.

Accordingly, I fail to find the proof of Dr. Robinson's view, that the process begins in the rete, though I cannot *prove* the contrary. Other points of difference are, that I find very distinct changes in the sweat ducts and glands, which he does not, and that cell effusion round the hair follicles goes much deeper than he describes. This is against one of his arguments in favour of the epithelium hyperplasia preceding the cell effusion, as, according to him, the processes of the hair follicles are produced beyond the cell effusion. I can quite confirm the accuracy of his observations in other respects.

Organisms in the horny cells have been previously described by Angelucci, who stated, at the International Congress of 1881, that micrococci were present in the scales. What their significance may be remains to be proved, but I am not personally disposed to adopt at present Lang's * view that they are etiological. I have compared my observations thus closely with Robinson's,† because he is a recent and careful observer on the earliest visible lesions of psoriasis, and most other investigations have been on more advanced lesions. In larger patches, Thin's ‡ observations that the rete, or the top of the papillæ, is thinned by the premature conversion of the rete cells into horny cells is, I believe, true, and borne out by the clinical facts, but does not hold good for the earliest papules. Neumann's statement, that prickle cells are absent in psoriasis, is also not true of the earlier stage of the process, according to my observations.

Diagnosis.—The usual run of cases present no difficulty in diagnosis. The absence of discharge throughout its whole course; the position of the patches, fairly symmetrically distributed upon the extensor surfaces, especially the elbows and knees; their well-defined borders; the imbricated white scales adherent into crusts,

* Wolff of Strasburg has shown that Lang's epidermophyton is really eleidin, and disappears when the fat is soaked out of the section.

† Robinson, *New York Med. Jour.*, July 1878, vol. xxviii.

‡ Thin, *Brit. Med. Jour.*, July 30th, 1881.

covering the raised, reddened base; and, when the scales are picked off, the bright red, easily bleeding points, which start into view,—form a group of symptoms of a strongly differentiating character. To these, Bulkley adds the possibility of peeling off a thin pellicle, after all detachable scales have been removed. But when in one or other of the many phases presented by psoriasis, some of the above features fail to be characteristically developed, unless the symptoms are taken as a whole, difficulties may arise in distinguishing it from lichen planus and lichen ruber, some forms of eczema, pityriasis rubra, squamous syphilides, seborrhœa, tinea circinata, and lupus erythematosus.

From Lichen Planus.—Difficulty only arises when the lichen planus is in patches or infiltrations.

Psoriasis chooses the elbows and fronts of the knees; L. planus the flexures of the wrists and inner side of the knees or, even when it does appear on the extensor surface, the elbows are not the usual seat.

Psoriasis is conspicuous for the quantity of its scales; L. planus is conspicuous for their absence or scantiness, and there are never scaly crusts.

The ground colour of psoriasis is a bright red, that of L. planus is of a bluish-red tint, unless more acute than usual.

Psoriasis begins by the formation of a small, flat, scaly speck, which speedily enlarges, by spreading at the edge into a patch. L. planus begins as an irregular, flat, shining, smooth papule, and the patch is formed by the aggregation of many papules. The lichen infiltrations, which are more scaly than the patches, are produced by the springing up of fresh papules between the patches; the large patches of psoriasis, by the component patches spreading at the periphery until they meet. The thickening of the skin is much less than in the lichen infiltration.

Psoriasis, as a rule, leaves no staining, unless treated with arsenic. After L. planus, staining is always a marked feature.

From Lichen Ruber (*Hebra*).—Error may arise between the papular stage of the lichen and psoriasis punctata, and between general L. ruber and general psoriasis; but in L. ruber the papules are acuminate, and begin on the trunk, and the infiltrations are formed as in planus. When both are general, the scales are much less, and the thickening of the skin much greater in the lichen.

From Eczema.—As a rule this is easy; but when eczema has ceased to discharge for some time, or when the inflammation has not been intense enough to produce discharge, there is occasionally great difficulty in distinguishing it from an ill-developed patch of psoriasis.

Eczema prefers the flexures, and then begins as groups of small vesicles on an inflammatory base, but it is quite common on the extensor surfaces, beginning there as groups of acuminate papules which may go on to vesiculation. It is exceptional not to get a history of discharge in eczema, which never happens in psoriasis, unless it is irritated.

Sharp definition at the border of the patch is the rule in psoriasis, and is seldom seen in eczema, which shades off into the healthy skin. This is a very valuable help in doubtful cases. Eczema crusts are dried inflammatory exudation with few scales; psoriasis crusts are all scales. When eczema has been dry for some time there may be only scales, but these are not then heaped up into crusts. Pick off the crusts of psoriasis, and you get bleeding; pick off the crusts of eczema, and you get serous discharge. An eczema patient is nearly always in bad health; a psoriasis patient is often in good health. In eczema, the complexion is nearly always pallid and muddy; in psoriasis, the complexion is usually bright and ruddy.

When, however, there are only one or two patches of eczema, especially if upon the front of the leg, and there has been no discharge, or so little as to be unnoticed by the patient, the distinction is by no means easy, and only to be made by careful consideration of every point. Some cases of hyperæmic psoriasis limited to the scalp, are very like eczema of that part; but in psoriasis, where the eruption extends a little beyond the scalp, the edge terminates abruptly. Although intensely red, the surface is quite dry, while discharge would always be present in eczema with the same degree of redness. When an old patch of eczema is unusually well-defined at the edge, diagnosis is sometimes difficult; the fact of the patch being away from the usual psoriasis positions, would be of value.

From Pityriasis Rubra.—The diagnosis gives trouble only between a pityriasis rubra of a few days' duration and a psoriasis of moderate extent, or when both have become general.

The development is slow in psoriasis, often taking months or

years to become general; pityriasis rubra is very rapid, two or three weeks, or even less, being often sufficient to cover the whole body.

Psoriasis is never absolutely universal, some intervals of healthy skin being always present; pityriasis rubra is nearly always really universal.

The scales are thin, papery, and never in crusts in pityriasis rubra; they are easily detached, and do not conceal the reddened skin beneath, which is generally not so thickened as in psoriasis.

From Tinea Circinata.—The few non-symmetrical patches in tinea circinata coming anywhere on the body, the at first papular margin, and the scanty scale formation, should excite suspicion of the true nature of the disease, which microscopic examination would confirm.

From Seborrhœa of Scalp.—Psoriasis is usually in patches, seborrhœa nearly all over the scalp; seborrhœa scales are fatty and dirty-looking, on a non-inflamed surface. Where psoriasis is all over the scalp, it spreads beyond the hairy part, and its true nature is then evident; moreover, it is rare then, not to find psoriasis in its other favourite seats, or at least a history of its having been there.

From Lupus Erythematosus.—This comes usually on the cheeks, where psoriasis is seldom seen. The scales are scanty, the edge more raised, the tissues more thickened. In the early stage plugs are often formed in the patulous sebaceous openings, and if removed spontaneously, or by treatment, leave more or less evident scarring.

From Syphilides.—Both secondary and tertiary squamous syphilides may be mistaken for psoriasis. The following points in the secondary squamous syphilides will assist in arriving at a correct conclusion:—

An acquired syphilide is rare in a child, and psoriasis is rare under three or four years. The patches do not favour the extensor surfaces so much as the flexor, nor are they seen at distant parts of the body, with extensive intervals of freedom from disease. They are always small, seldom over half an inch in diameter, and there is no tendency to enlarge peripherally. The scales are scanty, and often dirty-looking. The colour may be bright red at first, but in a few days a brownish-red tint is acquired. A awn-coloured stain is always left when the eruption subsides.

Besides this, there are often concomitant eruptions of a different character, and nearly always corroborative evidence, such as sore throat and tongue, bone pains, iritis, or some other characteristic symptoms.

From Gyrate and Circinate Syphilides.—These also imitate similar-shaped lesions of psoriasis. Here again the position, colour, and scales differ as described above, and the syphilitic cachexia is usually well marked.

From Tertiary Squamous Syphilides.—One form of this closely resembles some cases of psoriasis. Here again position may assist. The syphilide is much more often on the face than psoriasis; the edge is more raised, giving the appearance of a depressed centre; the scales, though white, are not imbricated, and ulceration is very liable to occur, but even without this some scarring and deep pigmentation are usual sequelæ. The number of patches is seldom large, and they are not symmetrically arranged.

Prognosis.—The prognosis of psoriasis is good for any one attack, but bad for the disease as a whole. Although not always easy, we can promise to remove the eruption of any one attack, but we know of no means of preventing recurrences, which are almost sure to occur sooner or later in at least 90 per cent. of the cases. The frequency of recurrence is very variable. In some people, it is an annual event, or even more frequent, one attack overlapping another even while under treatment. In others, there may be an interval of years, these variations happening perhaps to the same individual at different periods of life. Left to itself, it may go on for many years with remissions and exacerbations, or it may sometimes disappear spontaneously.

We can, however, in some degree, limit the extent of the eruption by timely treatment, and the maintenance of good health exercises an important influence in mitigating the severity of an attack, and even in warding it off for some time. For as it has been shown that any depressing influence may determine an attack in one predisposed, so averting such influences must be of some service in prevention. Since, however, our efforts in this direction must often be unsuccessful, the disease is pretty sure to recur, and we at best, only lengthen the intervals of freedom, or diminish the severity of an attack. The universal form is said by Hebra to be

especially obstinate, and occasionally fatal. I have never seen a case in which it was not possible to remove the eruption for a time, though much perseverance is sometimes required.

Treatment.—Although the eruption of psoriasis can often be removed by internal or external treatment singly, a judicious combination is the quicker and more effectual method, as this disease is frequently so obstinate as to tax all our resources and patience.

Favourable cases of moderate extent take from about three weeks to three months to remove the eruption, the shorter period only being required when the patient will give himself up to the treatment.

There being in a large number of instances, no special indications as far as the general health is concerned, empirical remedies are resorted to, and the general consensus of opinion points to arsenic as our stock remedy. It is apt, consequently, to be used far too indiscriminately in this disease, in which it is generally beneficial, as well as in many others, in which it is either useless or injurious. I am firmly convinced that if any defect, however slight, in the surroundings or health of the patient can be detected,—and careful search should always be made,—the soundest practice is always to endeavour to remove such defects before attempting the internal use of specific medicines; and in a large number of cases thus treated the eruption is removed without any occasion for their use. The direction in which the defects of health are most frequently found lies in those causes tending to the depression of the general vitality, *e.g.*, over-work, a relaxing climate, sexual excesses, suckling, or other drain upon the system. Gout and rheumatism have a causative relation in only a few cases. These indications must be met as far as the patient's circumstances allow; but failing to find any of these, we fall back upon specifics.

Arsenic.—There are few diseases of the skin in which arsenic is so beneficial as in psoriasis. The drug may be given in the form of liquor arsenicalis, liquor sodæ arseniatis (about half the strength of liquor arsenicalis), or the Asiatic pills, which are in much favour abroad, and contain one-twelfth of a grain of arsenious acid. At first one pill is taken three times a day, and the number may be increased until ten or twelve a day are reached, and continued for several months. Three or four thousand have been taken in this way; but Kaposi says that if marked improvement has not occurred with five to six hundred pills, arsenic may

be considered to have failed. Any colic and diarrhœa may, to some extent, be controlled by opium. I prefer liquor arsenicalis because it admits of free dilution, and thus diminishes the risk of gastro-intestinal derangement, which is so apt to ensue during the arsenical course. As another means of avoiding this, the English plan is to give arsenic immediately after meals. The Germans, however, give it before meals; but few English stomachs can bear it given thus, and I believe it has no advantage *quâ* the skin. The dose of liquor arsenicalis should begin at three minims three times a day, and it may be increased to ten or fifteen minims a dose, if the drug is well borne. Much larger doses have occasionally succeeded where moderate doses have failed; but arsenic should always be given with caution, and ʒss of tinct. lupuli with each dose seems to facilitate its toleration. Great differences, however, exist in this respect. Some people can take large doses for months without any ill effects, while in others two or three minim doses produce so much irritation of the alimentary canal that the drug has to be abandoned. It should not, however, be given up until efforts have been made and failed, to avoid these symptoms.

Subcutaneous injections may be tried in some of these cases, and very good results have been obtained in from one to six weeks; but I have not any personal experience to offer upon this plan, which is rather painful and inconvenient in private practice.

Great variations exist in the effects of arsenic upon the eruption; even in the same person, it will at one time remove the disease, and at another fail altogether. It is usually slow unless assisted by local treatment, and three months of full doses is required to give it a fair trial. Often improvement does not commence until a considerable quantity has been taken.

It is most indicated where there is no other defect of health to grapple with, and when the eruption is chronic and the hyperæmia moderate.

It is contra-indicated, when there is an idiosyncrasy which makes the patient especially intolerant of it, when there is an inflammatory condition of the alimentary canal (except in drop doses in cases of chronic gastric catarrh), and when the eruption is coming out acutely and the patches are very hyperæmic, as it often aggravates the eruption. Itching of the eyelids, redness of the conjunctiva, nausea, vomiting, colicky pains, and diarrhœa, are

among the earliest symptoms which warn us to diminish the dose, but it need not be given up at once. As regards the skin, it aggravates the itching for a time in some cases, so as to make it almost intolerable, and not infrequently, fresh patches appear while taking arsenic, even while the old ones are subsiding. As already mentioned, pigmentation after the subsidence of the eruption is apt to occur in cases treated by arsenic.

If given for only three or four months, the pigmentation will usually be localised to the site of the patches; but when given for very long periods, general pigmentation and general thickening of the palmar and plantar epidermis may ensue. It should therefore not be so long continued, and it is, moreover, useless for the disease, as arsenic has no prophylactic influence, and acts only locally on the diseased area.

Kaposi speaks well of *carbolic acid*, given internally in the form of a pill, each containing half a grain of carbolic acid, five to ten pills to be taken daily. He says it is as good as arsenic, and that he has never seen any renal trouble from its use.

Turpentine.—I have given turpentine in a considerable number of cases, and can speak highly of it. Under its use, the hyperæmia is reduced, the scales fall off, and many cases get quite well in about two or three months; in a larger number, great improvement is effected up to a certain point, after which progress is slow if local treatment is not used in conjunction with it.

It may be given in capsules or in the form of an emulsion, which I prefer, the oil of turpentine being rubbed up with mucilage of acacia. The dose, to begin with, should not be more than ten minims three times a day after meals, and it may be increased by five or ten minims a dose up to ℥xxx, where the patient is very tolerant of it. It is imperative that barley water should be taken freely during the treatment, and the last dose should not be later than six or seven o'clock in the evening. Like arsenic, it is most suited to cases where there is no special indication in the general health, and it sometimes increases the itching for the first week or two, but this soon ceases by perseverance with the remedy. In overdoses, or where the above precautions are neglected, or in people with natural irritability of the urinary organs, it may produce some pain on micturition, or even strangury and hæmaturia, but the last two are rare, except in large doses. Giddiness and diminution of the urinary secretion may also occur; the latter

is obviated by taking barley water freely. If dyspepsia be present, turpentine would probably aggravate it.

Chrysarobin has also been proposed for internal administration, but is of no practical advantage, and has emetic and other disagreeable effects.

Antimony, Cantharides and *Phosphorus* have had their advocates. I have tried phosphorus in several cases without any appreciable result, but I have found ɱv to ɱx of vin. antim. tartaratum useful in acutely inflammatory cases, as Malcolm Morris recommended.

Where the eruption is very extensive, diuretics, especially acetate of potash, are often useful in reducing the hyperæmia. The good effects which Greve and Boeck of Christiania and Haslund of Copenhagen have observed from large doses, up to fifty grammes a day, of iodide of potassium, are very probably due to the powerful diuretic action of this salt. It is not, however, a drug which can be used indiscriminately, and small doses only should be given at first.

Local Treatment.—Local measures play a most important part in the treatment of psoriasis, and are of two classes: first, those used to remove the scales, and so prepare the way for the second, which exercises a directly curative effect upon the diseased skin, and so prevents the renewal of the scales.

In the first class, come alkaline baths, wet packing, india-rubber clothing, inunction with oil, vaseline, or fat, soft soap, and even caustics, and a 6 per cent. solution of salicylic acid in spirit. The fat, etc., requires to be well rubbed in. Many cases get well with one of the above methods alone, if persevered with; continuous baths in simple tepid water have also been successful. Much depends on the thoroughness with which the scales are removed. Soft soap rubbed in firmly and for several minutes with wet flannel into each patch is one of the best methods, but it is no good to try and rub over several patches at once. Half the battle depends on the thoroughness with which the preliminary and curative agents are rubbed in. In an extensive case, two or three hours a day can be usefully spent in the application of the different remedial agents. For alkaline baths, two or three ounces of bicarbonate of soda are added to thirty gallons of water at a temperature of 95° to 100° F., and the patient soaks in it for twenty minutes and rubs off the scales. After the scales have

been removed, the selection of a suitable remedy is required, and as there are a legion of them, the principal only are given, with some points for guidance as to which to employ.

They are all microbe destroyers, and are best arranged in classes according to their stimulating and penetrating effect, since a remedy, that would be most valuable for a chronic indolent patch, would aggravate the eruption when acutely inflamed. With the exception of the soothing class, which are best applied by continuously enveloping the affected parts, the local applications for psoriasis should be rubbed or scrubbed in, not merely laid on. When the hyperæmia is very great, especially in the cases described as P. eczemateux, the soothing remedies recommended in the treatment of eczema are alone suitable, such as continuously wrapping up the parts with calamine liniment, simple olive oil, or inunction of the latter ; alkaline baths are useful here also, as indeed in all stages of the eruption.

In the stage beyond this, when mild stimulants only can be tolerated, mercurial ointments are most useful—hyd. ammon. gr. 10 to ʒij to ℥j of vaseline or other simple unguent ; hyd. oxidi flav. in the same strength, or the two combined ; ung. hyd. nitrat., more or less diluted ; hyd. biniodid. gr. 3 to gr. 10 to ℥j. The last is a stronger stimulant.

Of course the mercurial ointments should only be used over a limited surface at a time. The vast majority of cases will bear stronger stimulants, of which tar in some form is the most universally employed. Ung. picis liquid., pure or diluted, is often effectual, but dirty, and smells disagreeably ; less unpleasant are the oleum cadini, oleum fagi, oleum rusci, or creasote, ʒss to ʒiv to ℥j, as ointments, or as lotions dissolved in spirit, with or without soft soap ; or liquor carbonis detergens, from ♏xx to ℥j of water and upwards to the undiluted liquor, are all valuable remedies. Tar baths are also useful. Tar, however, has many disadvantages ; serious constitutional symptoms, as well as acneiform and other eruptions of the skin, may ensue, if absorption occurs from its vigorous employment, or from some idiosyncrasy of the patient. It also smells strongly and stains the skin.

Naphthol β, *Thymol*, etc., are remedies which may be used in the same class of cases as those in which tar would be suitable, but are much more cleanly and pleasant. Thymol was introduced by myself for this purpose some years ago. It is perfectly clean,

being a white crystalline substance, and its odour, that of thyme, is not unpleasant; it is especially useful, therefore, for eruptions on the face. It may be used from gr. 15 to ʒiij to the ℥j as an ointment, or as a lotion (Lotions, F. 14, *a*).

Naphthol was introduced by Kaposi as a remedy; it is of about the same efficacy as thymol, may be used of the same strength, and in similar cases. It is equally clean, and when made into an ointment is almost odourless, and is thus the most pleasant remedy we possess for psoriasis (F., Parasiticides, No. 8). If absorbed, it is converted into naphthol sulphate, and produces cloudy urine. Although decidedly useful, I have not so high an opinion of it as Kaposi appears to entertain. Resorcin is useful in the proportion of gr. 20 to ʒij in ℥j of lard. It neither stains nor smells, and can therefore be used on the face, and without interfering with the patient's avocations.

Chrysophanic Acid, *Pyrogallic Acid*, and *Turpentine* are all very powerful remedies, for the most part only adapted to those cases requiring strong stimulants.

Chrysophanic acid, or more correctly chrysarobin, exists in the proportion of 80 per cent. in Goa powder. It was introduced by Balmanno Squire, and is a very powerful and rapidly efficacious remedy, but has a good many drawbacks attending its use. It may be used as an ointment of a strength from gr. 15 to ʒij to the ℥j, but it is rarely desirable to use it stronger than ʒj to the ℥j, and in the majority of cases ʒss to ℥j is sufficient.

The patches are removed often very rapidly, leaving a whiteness on the site of the eruption for a short time. The patient should always be warned of its probable effects, viz., an erythema of the skin, extending far beyond the part to which the drug is applied, attended with severe itching, heat, pain, and swelling; this subsides in a few days if the remedy be discontinued, and often even if it is not, leaving a dirty-looking desquamation. If used in the neighbourhood of the face, conjunctivitis is apt to occur. It dyes the hair, nails, skin, and linen yellow, which turns to a purplish brown after washing, due to the alkali in the soap. These disagreeable effects may, however, be avoided by using Auspitz's method:—ʒj of pure gutta-percha is dissolved in ʒx of chloroform, this is called traumaticin; to this, ʒj of chrysarobin is added, and after removing the scales, this emulsion is painted on and forms a film; it is renewed every two or three days. Besnier's modification

is to paint on a solution of chrysarobin in chloroform, and then cover it with traumaticin varnish. Both methods are equally efficacious, and superior to Pick's first plan of dissolving the drug in gelatine, and applying the melted compound, with a little glycerine, afterwards to prevent cracking.

Anthrarobin is said to have all the advantages, and none of the disadvantages, of chrysarobin. Although capable of being used with good effect, it is much less powerful than chrysarobin, and in strong applications will excite erythema, and it produces stains.

Hydroxylamin has no advantages to compensate for the dangers attending its use without great caution, and it had better be avoided. Even a 1 in 1,000 solution used as a lotion has produced albuminuria.

Pyrogallic Acid is not quite so strong or rapidly efficacious as chrysarobin, but it is a very good remedy. It excites no inflammation, unless applied continuously, and even then not beyond the point of application; but it stains the skin and linen, and may produce dryness, itching, and follicular papules or pustules. It should, moreover, only be used over a limited area at a time, as it may be absorbed, and would then produce strangury and olive-green urine, with moderate fever and nausea. It is used in the form of an ointment (from gr. 10 up to ʒj to the ℥j).

Turpentine being a powerful, penetrating stimulant, it occurred to me that it might be useful as an external application, and I have employed it in a large number of cases with gratifying success. It is very cleanly, but the odour is a drawback. The oleum pini sylvestris has a less unpleasant smell, and oil of lavender or essence of lemon covers it very fairly. I use it either undiluted—in which case the skin is afterwards smeared with vaseline to prevent too much desiccation—or diluted with olive oil (from ʒj of oil of turpentine to ʒvij of olive oil and upwards). I begin with the weak preparation, and increase the strength if it does not excite too much irritation. Like all the above-mentioned stronger remedies, it should not be used in very hyperæmic cases. The addition of ol. cadini or ol. rusci is useful in obstinate cases. When rubbed on one side of the body only, turpentine and chrysarobin affect the opposite side beneficially, though in a minor degree.

Other remedies of this class which I have found useful are cantharides, extract of capsicum, the essential oil of mustard

and powdered mustard; they often answered well, but the first three were uncertain and sometimes painful, and the oil of mustard is also disagreeable from its volatile, acrid fumes. The powdered mustard, made first into a thick paste with water and then rubbed up with vaseline or lanolin, is very good in most cases, and not painful or disagreeable. Chemical oleate of copper (℥ss to ℥ij to the ounce) and salicylic acid (gr. 20 to ℥ij to ℥j) are also of value. Hebra's "Wilkinson's ointment" is a strong, but very effectual application in properly selected cases, especially obstinate patches on the knees. Sulphur baths made with sulphide of potassium are also useful. Pfeuffer's soap treatment, as modified by Hebra, is an ordeal that few patients will go through, but it is doubtless efficacious in certain cases. To limited patches, as on the front of the knee, scrubbing well with spiritus saponatus kalinus is often one of the best means to adopt; and for the scalp, when not actively hyperæmic, the same liniment rubbed in with a piece of flannel rarely fails to cure rapidly. Oil of cade is often a useful addition. It is advisable to use it at night, and after washing the scalp with soda or borax lotion to use some lubricant like almond oil and lanolin in the day. Much experience and judgment are often required for the selection of the proper remedy in any particular case. The first object always, is to remove the scales; the activity of the inflammation is next to be judged of, and in any case where there is a doubt, it is always safer to use the weaker preparations, and when the strong are thought to be suitable, use them well diluted at first. Frequently, patches in one part of the body require different treatment from patches in another; and if a fresh attack supervenes upon an old one, the remedies used for removing the old patches often aggravate the new, which probably require a much milder treatment. Obstinate as psoriasis often is, it is rare indeed that success in the removal of the eruption for a time cannot be attained by skill and perseverance.

The watering-places that are most beneficial in psoriasis are Bath, Harrogate, Buxton, and Strathpeffer in Britain, Leuk, Aix-la-Chapelle, Kreuznach, and La Bourboule on the Continent. They act mainly by soaking off the scales, and are locally not more effective than equally long immersion at home. La Bourboule and Royat contain arsenic, and are proportionately efficacious internally; but the rest and diversion, change of climate and scene,

the regular diet and living, have a beneficial effect in addition that must not be lost sight of.

PITYRIASIS.

Deriv.—πίτυρον, bran.

The term pityriasis was formerly used by Willan and his followers to designate several forms of slight dermatitis, in which small scales are the predominating feature.

Thus P. capitis is either a mild eczema or a seborrhœa sicca, or the two conditions may be associated, while P. versicolor is a tinea. P. nigra is probably parasitic, but it is doubtful what Willan meant by it. According to Hebra, it is the pigmentation induced by scratching in chronic pediculosis. There is also a form of P. versicolor which is sometimes black. P. rubra, as Willan used it, was probably a dry eczema. Other authors have employed some of these terms in a different sense, but they do not designate any separate form of disease, with the exception of the P. rubra of Hebra, the P. rubra pilaris of Devergie, and the P. maculata and circinata first described by Gibert as P. rosea. The diseases therefore thus designated, both heretofore and in the present day, possess no pathological affinities, but simply have in common, the clinical feature of dry scaliness, with which symptom the term pityriasis is synonymous.

Here may be mentioned the curious and rare condition of "**Deciduous Skin**" or **Keratolysis**, in which the owners possess a skin which, like the serpent's, is cast off periodically, that of the limbs coming off like a glove or a stocking. A case of a woman who had done this every month or six weeks from the age of seven, if not earlier, is recorded by Chevalier Preston* of Canterbury, New Zealand, and another by Frank and Sanford† of Chicago of a man æt. thirty-three, who from the first year of his life had shed his skin on July 24th each year, between the hours of three p.m. and nine p.m. Constitutional febrile symptoms were experienced, and intense redness of the skin ensued; the whole process of exfoliation was completed latterly in twelve days, while in early life, it was complete in five days. I‡ have met with a case of a man with tylosis palmæ in

* *Lancet*, October 22nd, 1881, p. 703.
† Quoted in *Med. Press*, September 9th, 1891.
‡ *Brit. Jour. Derm.*, vol. iii. (1891), p. 172.

which every autumn the thickened skin was cast off, but the process occupied two months. Lang had a case where the fingers alone were affected.

PITYRIASIS RUBRA.*

Synonyms.—Dermatitis exfoliativa; Pityriasis rubra aigu (Devergie); Érythrodermie exfoliante (Besnier).

Definition.—Pityriasis rubra is an inflammatory disease, involving the whole surface of the body, characterised by deep redness with abundant flaky desquamation.

This disease was first described by Devergie, and is one of the rarer diseases. It may be primary or follow some other form of dermatitis, be acute, chronic, or relapsing; but the general aspect of the skin varies but little under the different circumstances. Some authors are inclined to regard it as a form of eczema, but the majority of cases are much more like a very acute psoriasis, and it is better, at all events for the present, to consider it as a separate affection.

Many restrict the term pityriasis rubra to Hebra's type, and include all the rest under dermatitis exfoliativa, but in my opinion they are all branches of the same trunk.

Symptoms.—In a typical case, often without definite symptoms, except perhaps a feeling of debility and depression, the eruption appears suddenly, either as a diffused redness, rapidly spreading all over the body and soon becoming scaly, or in the form of very slightly raised, well-defined red patches, which soon become scaly. They appear symmetrically in varying positions, the chest and limbs being perhaps the most common when there has been no previous eruption, but it may begin anywhere. The disease is, however, seldom seen at this stage.

The eruption spreads rapidly at the edge of the lesions, and

* *Literature.*—Buchanan Baxter, "General Exfoliative Dermatitis," *Brit. Med. Jour.*, 1879, vol. ii., pp. 79, 119; Hutchinson, *Rare Diseases of the Skin*, 1879, p. 241; Pye-Smith, "Superficial Dermatitis," *Guy's Hosp. Rep.*, 1881, vol. xxv., p. 27; Percheron, *Étude sur la dermatite exfoliatrice* (Paris, 1875). The works of E. Wilson, Hebra, Devergie, Bazin, Hardy, may all be consulted with advantage. Brocq's monograph, *Étude critique et clinique sur la dermatite exfoliatrice généralisée* (Paris, 1882), or the analysis of it in *Ann. de Derm. et de Syph.*, 1883, vol. iv., p. 90.

others forming, the whole body may become involved in from two days to two or three weeks, so that there is absolutely no sound skin anywhere. The nail substance may not be involved, but it is often separated from its bed, partially or entirely, by the accumulation of epithelium beneath. The entire surface is of an intense bright red, soon assuming a deeper hue, but the colour is partially concealed by the scales; the redness is uniform, and there are none* of the red puncta, which can be seen with a lens in psoriasis, when the scales are removed. Everywhere, the surface is covered by thin papery scales, small upon the face, but on the body very large, free at all their edges, except one perhaps, and somewhat imbricated, like scale armour, but never adherent into crusts. The scales are easily rubbed off, but are rapidly renewed, so that two or three pints or more may be collected in the twenty-four hours. On the palms and soles, the skin is detached *en masse* or in very large pieces, but the redness does not show until after the first exfoliation. With all this intense hyperæmia, only slight appreciable infiltration of the skin is usually present, and the surface is dry where the scales are detached or easily detachable, but slightly moist underneath, where they are more closely adherent.

The sweat secretion is not always interfered with, and is sometimes profuse in parts like the axillæ. There are no rhagades usually, the cuticle alone splitting, and there is little or no itching, but there is a feeling of burning, tingling, stiffness, and tenderness. Once the disease is completely established, the appearance of the skin may undergo but little change for an indefinite period, but in cases that have lasted for years, there may be either thickening from infiltration in some parts, or thinning in others, the redness gets more brownish in hue, and the scales smaller. The tongue appears preternaturally red, and there is, no doubt, exfoliation here; but it has been recognised in only a few cases, probably on account of the moisture of the parts removing the epithelium as fast as it is loosened; nevertheless, transitory white patches have been observed on the tongue and oral mucous membranes.

Variations.—In a few cases, the itching is severe, and is sometimes the first symptom to attract attention. Attacks limited to certain regions occur, which must be included under this term,

* The case described in Hillier's handbook is an exception to this.

though contrary to the definition and to the first ideas of the disease; these may ultimately develop into universal attacks; or, on the other hand, the first attack may be the most severe, and future attacks diminish in severity. Devergie describes cases with fluid exudation in considerable amount, but it does not stain linen, and may not even stiffen it; in the latter case, it has often been compared to sweat, and possibly may consist largely, if not entirely, of that secretion, but in advanced cases, the sweat glands get destroyed. Rhagades, though not common, may occur, and in this sort of case, the eyelids may be drawn down owing to the stiffness of the skin.

From time to time cases have been published under various names, signifying their most prominent features of inflammatory redness and persistent desquamation, generally universal, but occasionally partial, as in Bulkley's case, where the hands and feet only were invaded; the term dermatitis exfoliativa covers them all pretty well, but while they are generally acutely hyperæmic only, they are sometimes vesicular or imperfectly bullous. Baxter, in his valuable paper, has noticed nearly all the cases up to date, and while they do not exactly fit in with the typical cases of P. rubra, all but the bullous cases approach that disease most nearly, and it is probable that we must widen our conception of it. On the other hand, Duhring is inclined to regard them as belonging to a class of their own.

I am quite satisfied that cases of true P. rubra may be partial. I have also seen, in some cases, the scales quite small and powdery where the hyperæmia has been moderate, and in others rather free moisture in some parts, while the rest of the body presented typical characters.

The disease may begin with sudden swelling and redness, indistinguishable from erysipelas, though undoubted erysipelas has preceded an attack. This kind of swelling rapidly subsides, as a rule, but it may be more permanent, though to a less extent; brawny infiltration is also recorded; and limited thickening of the cutis in cases of long standing is not uncommon. The nails may be preternaturally softened and thinned; or on the other hand thickened, roughened, and furrowed.

Vidal and Kaposi have each had a case where small patches of spontaneous gangrene of the skin were observed on the shoulders, sacrum, thighs, etc.; and Stephen Mackenzie had a case where

there was general pityriasis, but no redness ; as a sequel, pityriasis rubra pilaris has been recorded by Devergie and Tilbury Fox.

General Symptoms.—In the majority of instances it has occurred in previously healthy subjects, and even where it has not been so, in many cases, the general symptoms have been slight and indefinite, a feeling of debility, depression, and chilliness being the most frequent. On the other hand, severe rigors and considerable fever, reaching to 103°* and even 104°† as a night temperature, with a morning remission, have been noticed in a few cases in which the temperature has been taken regularly ; this fever is usually of short duration, and occurs only in the first few days, subsequently falling to normal or sub-normal ; but recurrences of fever, especially in relation to relapses, may be kept up for months. How severe the symptoms may be, the following case exemplifies. A man æt. forty came under my care, who in the course of seventeen years had thirteen attacks, of which nine were partial and apparently psoriasis, the four last universal and true P. rubra. The first came on one year after rheumatic fever, which left no cardiac affection. In most of the attacks, he felt languid and out of sorts ; in the last, after having had patches on the extensor aspect of the limbs, just like the developed disease, for four months, it became universal in two days, with great prostration, anorexia, and slight diarrhœa, with subsequent constipation. He was doing well, the eruption having cleared off the face and chest, when a return of the weakness and depression was rather suddenly manifested ; the throat was sore, and the temperature, which had not exceeded 100° for ten days, rose to 102°. Four days later, an attack of sudden swelling and redness, indistinguishable from erysipelas of the face, occurred, followed by transitory improvement in the general symptoms. Then the pityriasis again became universal ; nightly recurrent rigors, once amounting to a slight convulsion, set in ; the temperature reached 104° at night, falling to 100° during the day ; there was moderate albuminuria ($\frac{1}{10}$ albumen the last day) ; considerable emaciation ; typhoid condition ; pulmonary œdema, and a temperature of 106° an hour before death, which occurred fourteen days from the first change for the

* Gairdner's case, and a man in U.C.H. In this case, after malaise and slight chilliness, a cold bath excited a severe rigor, and the eruption came out on the chest and legs the same night.

† Hessey, U.C.H., males.

worse, and nine weeks from the disease first becoming general. Post mortem, there was pulmonary œdema, a large soft spleen, and a fatty liver, but nothing to account for the result.

Other cases with the same symptoms, with the addition of diarrhœa,* have been previously recorded.

In cases of several years' standing, anæmia, gradual emaciation, and exhaustion may lead to death; or an intercurrent malady, such as phthisis, pneumonia, or bronchitis, may usher in the end.

Instead of beginning in previously healthy subjects, in several cases there has been a history of acute rheumatism, with or without consequent heart disease, and in five cases, at least, erysipelas or an erysipelas-like condition, has immediately preceded the outbreak of pityriasis rubra, or an exacerbation of it. In most of these, however, erysipelas was probably only simulated.

Defects of nutrition of the skin of long standing have existed in a few cases.

Many have been the subjects of psoriasis or eczema before or at the time of the outbreak. In one,† the head and neck were eczematous, and the trunk like P. rubra; in another,‡ psoriasis existed at the time of the outbreak, and lasted six weeks, and as the P. rubra got better, the psoriasis resumed its normal course. An extraordinary case, under my own care, was that of a young woman with general scaly folliculitis, who during treatment with subcutaneous injection of arsenic developed rheumatic fever (her second attack) with peri- and endo-carditis, double iritis, and multiple arthritis. The skin became acutely inflamed, the whole of the original rash shelled off in large patches, the skin beneath was smooth and shiny, and then scaly, and P. rubra developed. The woman recovered after being almost at death's door, and subsequently there was a slight return of the primary eruption. Baxter had a case developing on lichen ruber. He also had a case following pityriasis capitis and erythema papulatum, and another in a child of six months developing from eczema of the head and face. In my experience, it is far more frequent after psoriasis § than any other form of dermatitis. It is noteworthy, that

* Mary T., U.C.H., females.

† S. Mackenzie, *Lancet.*

‡ Guibout, *Union Médicale.*

§ S. Mackenzie found it most frequent after eczema, *Brit. Jour. Derm.*, vol. i. (1889), p. 285; analysis of twenty-one cases.

nearly all these are forms of dermatitis which are liable to become universal, or nearly so, while still preserving their usual characters; but while some relationship is suggested, we must not conclude at once that the affinity is pathological, as it may be only etiological. Brocq * quotes a case in Vidal's clinique in which a severe attack of two months' duration, with intense fever, was excited by the too vigorous application of chrysarobin. I have also seen a typical case of P. rubra following the too vigorous inunction of ung. hydrarg., and one from the external use of arnica. These artificial cases, and those secondary to psoriasis and other forms of dermatitis, Brocq wishes to separate on the ground that they are not universal, nor of long duration; but this, while true of some cases, is not so of others. I have repeatedly seen the most severe, absolutely universal, and fatal cases in this class of secondary P. rubra, and, except etiologically, in every way similar to the other less common primitive cases. Brocq† considers desquamative scarlatiniform erythemata a benign primary form of it, and divides the rest into general exfoliative dermatitis—(*a*) sub-acute, (*b*) chronic, (*c*) infantile; and pityriasis rubra—(*a*) sub-acute and benign, (*b*) chronic malignant (type Hebra), and (*c*) chronic benign, the last variety being put forward tentatively. Although no doubt cases of each type are to be found, in my opinion there is no hard-and-fast line to be drawn between them, various connecting links existing. Primary cases of Hebra's type are very rare, and very slow in their development and course. The symptoms are redness, gradually increasing in extent and intensity, of a venous tint on the lower limbs, followed by the development of comparatively fine scales constantly shed and renewed. The general health is but little disturbed at first, but eventually there is increasing weakness, marasmus, and death by exhaustion. The skin towards the end, loses its red colour and becomes of a yellowish tint; it atrophies and shrinks, this thinning being a marked and diagnostic feature. Jadassohn,‡ who has written an able and exhaustive paper on Hebra's form, while contending that it is an absolutely definite and separate disease, admits that to Hebra's description must be

* *Amer. Jour. Cut. Med.*, vol. iv., January number.

† *Comptes rendus*, p. 72, Congr. Internat. Derm. et Syph., Paris, 1889.

‡ "Ueber die Pityriasis rubra" (Hebra), by J. Jadassohn, *Archiv f. Derm.*, 1892. Full critical abs. by Doyon, *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 413.

added, chiefly on the authority of Kaposi and H. Hebra, the following symptoms. The desquamation, instead of being fine, may be large and free; there may be actual thickening of the skin instead of thinning; itching may be a notable feature; slight moisture may be present; ulceration not absolutely confined to bony points of pressure; enlarged lymphatic glands; and, finally, that the prognosis is not altogether unfavourable. These additional symptoms are the connecting links to the other forms.

Course and Termination.—The course is very variable. The most common is for it to come on suddenly, become complete in a few days, and then continue for days or months, or years perhaps, or only end with life itself. It may take several months to involve the entire surface; or in some cases, after having been confined to a few regions for some time, it slowly, or without apparent reason, rapidly becomes general. Many acute attacks get well in a few weeks or months, and even after years they may recover, sometimes spontaneously, and others apparently, as the result of treatment. The disease predisposes to future attacks, some patients having annual recurrences, others going on for long irregular intervals; and even when cases are apparently getting well, a sudden relapse is not at all infrequent.

The unfavourable cases may go on to death in a few weeks or months with the symptoms already described, or they may drag on for many years, and die of gradual exhaustion, or of some intercurrent disease. When the case is getting well, there is a diminution in the intensity of the redness, the scales are less quickly re-formed, then clear places appear, increase in size, and gradually the whole skin resumes its normal appearance, leaving the patient more sensitive to cold than before, which may to some extent explain his liability to future attacks.

Children.—The disease is very rare in children, and when it does occur, runs a more acute course, is generally attended with severe constitutional symptoms, and is more likely to lead to death. The skin lesions have the same characters as in adult cases. In most cases it has been preceded by some other form of dermatitis. Some of these cases of general exfoliation are probably due to congenital syphilis, as in the following case of a boy æt. six weeks, who had been ill a fortnight. The whole of the body surface, and the oral mucous membrane were of a deep red colour, and the whole skin was desquamating freely, but not in large flakes,

otherwise it looked like pityriasis rubra; the eruption began on the buttocks, but there were no other signs of congenital syphilis, and the family history was doubtful. Non-specific treatment was tried for more than a month without benefit; it was then put on hyd. c. cret. gr. I three times a day, and was well in three weeks.

Under the name of **Dermatitis Exfoliativa Neonatorum,*** Ritter has described an eruption which he observed in the Foundling Asylum at Prague, where nearly three hundred cases occurred in ten years. It begins in the first or second week of life, and occasionally as late as the fifth, with diffuse and universal redness and scaling, which may be branny or in laminæ, like pityriasis rubra, and either dry or with effusion beneath the epidermis; sometimes it presents flaccid bullæ like pemphigus foliaceus, and then there are crusts as well as scales, with rhagades on the mouth, anus, etc.; there is a total absence of fever or other general symptoms. About 50 per cent. die of marasmus and loss of heat, with or without diarrhœa; in those who recover, the skin becomes pale, and the desquamation gradually ceases. Ritter regards it as of septic origin; Behrend thinks it is pemphigus foliaceus; while Kaposi, who has also seen cases in lying-in and foundling hospitals, while admitting its clinical resemblance to pemphigus foliaceus, regards it as an aggravation of the physiological exfoliation of the newborn.

Cases have also been described by Billard, von Baer, Caspary, and others, but none have been recorded in this country.†

Etiology. Age.—There appears to be no limit for pityriasis rubra at either end of the scale as regards age. I have seen one well-marked primary case in a child of two months, and one of seventy-seven years is recorded; but the majority occur between forty and sixty years of age.

Sex.—Both sexes are liable, but there is a decided preponderance among males, in the proportion of three to two, or even higher. The only other predisposing causes known are various forms of extensive dermatitis, such as eczema, psoriasis, lichen ruber or dermatitis due to mercury, chrysarobin, arnica, etc. I have shown in a paper read at the Paris Dermatological Congress‡

* *Viertelj. f. Derm. u. Syph.*, Heft i., 1879.

† G. Elliot, of New York, reports two cases with general review of the subject in *Amer. Jour. of the Med. Sciences*, January 1888.

‡ *Loc. cit.*, p. 68.

that there is a close relationship between rheumatism, especially the acute form, and gout and P. rubra, eleven out of eighteen cases having had this association; and Jadassohn points out the frequency of tuberculosis in some form in the Hebra type of cases. Out of eighteen cases, in eight tuberculosis could be proved, in one or two more it was doubtful, and in the rest, no inquiry had been made as to the point.

Of exciting causes, sudden chills have so immediately preceded the onset in some cases that they may fairly be inferred to have excited the attack. An alcoholic debauch is recorded in two cases. Both the exciting and predisposing causes, however, leave a large number of cases wholly unaccounted for; and since the conditions mentioned, both as exciting and predisposing causes, are of common occurrence, while pityriasis rubra is very rare, there must be some underlying factor at which we cannot even guess with our present knowledge.

Pathology.—Histological examination shows that the disease is a dermatitis, quite superficial at first, but when it has lasted some time the whole depth of the skin is involved, and eventually new connective tissue is developed, which subsequently undergoes cicatricial-like contraction, with abundant pigmentation, hyperplasia of the elastic fibre bundles, and obliteration of the skin appendages.

The anatomy, however, throws no light upon the original pathological factor; whether, as Pye-Smith thinks, it is a primary dermatitis, or, as most think, it is consequent on some defect in the nervous system, there are too few facts to allow of anything more than conjecture. Assuming that it is of nervous origin, it has still to be determined whether it is of peripheral or of central origin. If central, however, the disease must be placed high up in connection with the trophic centres.

Myelitis, with a P. rubra condition of the skin, has been recorded by Jamieson, and it is of value as evidence in this direction. Quinquaud and Lancereaux also describe both peripheral and central nerve changes of inflammatory character, in connection with the disease. On the other hand, the spinal cord, pons, and medulla in two of my cases were carefully examined by Dr. Frederick Mott, and no marked changes could be made out.

Anatomy.—Skin removed from the dead body has been examined by several investigators. The most recent and reliable observations are by

Hans Hebra in two adult cases, in which the disease had lasted thirteen months and five and a half years respectively. As I believe I am the only one who has examined skin from the living body, where the disease had existed only two weeks, I will give the results.

The skin was taken from the left side of the trunk. The process was entirely confined to the part of the skin above the longitudinal vessels of the superficial plexus, with comparatively little change in the lower half of this part. The sweat glands and other structures below the plexus were, therefore, quite normal.

In the horny layer, the upper two-thirds were split off from the lower third, which was closely adherent to the rete; the individual layers were

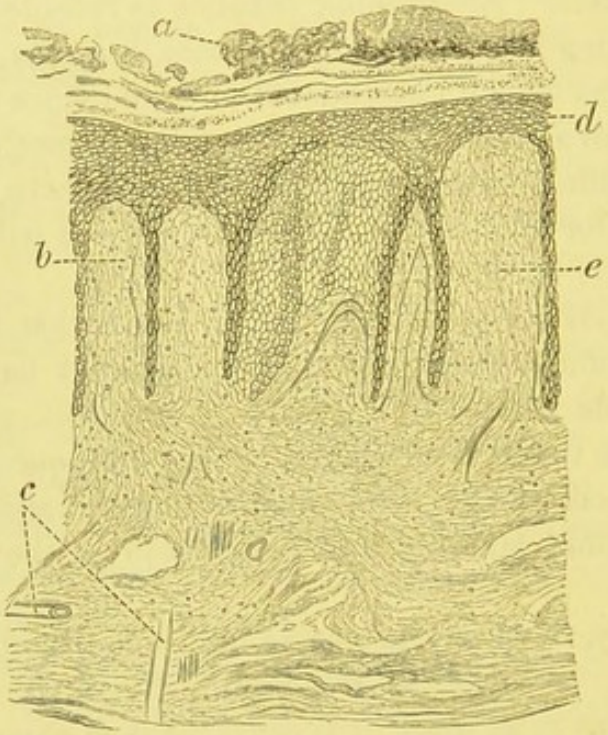

Fig. 17.—Pityriasis rubra, two weeks' duration, side of trunk.

a, scales; *d*, rete, thinned above, but with enormously elongated interpapillary processes; *e*, papilla enlarged vertically and transversely; *b*, papillæ and upper part of corium infiltrated with leucocytes (the infiltration was much more abundant than is depicted in the wood-cut); *c*, dilated blood vessels.

not at all separated from each other, as in psoriasis (see fig. 17). The rete was decidedly thinned over the papillæ, sent down long narrow processes between the papillæ, and thus produced a great apparent enlargement of them. The individual cells of the rete were unaltered, and no leucocytes were observed among them. The papillæ were enlarged transversely, as well as longitudinally; both they, and the immediately subjacent corium were infiltrated with leucocytes, but only in moderate numbers, and below this, they became quite sparse; there were none below the superficial horizontal vessels. The fibres of the papillæ and upper part of the corium were separated and stretched, inferably by effusion of serum. The cell infiltration was most abundant round the papillary vessels and the sweat ducts, where they traversed the affected

part of the corium; the lumen, however, was unobstructed here, but occluded in the rete.

In Hans Hebra's case of thirteen months' duration, the cell infiltration was present throughout the corium, and very abundant round the appendages of the skin, being present between the acini of the sweat glands. In the case of five years' standing, there were leucocytes even in the fat, but "the general impression given was that of a scar with epidermis over it."

The papillæ, sweat, and sebaceous glands were atrophied or absent. There were large coils of elastic tissue, and yellow pigment infiltrated the lowest part of the rete, and was scattered in masses throughout the corium.

Jadassohn found in Hebra's form, slight infiltration of round cells in foci in the upper portion of corium; increase of the connective tissue nuclei; large numbers of giant cells, especially in the papillary body and round the sweat glands; great accumulation of yellow and brown pigment in the corium; extreme proliferation of the cells of the rete and invasion of immigrant cells; thinning of the stratum granulosum and raising up of the horny layer into lamellæ.

Diagnosis.—Its sudden onset and rapid involvement of the entire surface; the intense redness, without exudation of fluid or thickening; the copious exfoliation of thin, papery scales; and the tendency, if untreated, to become chronic and lead to a fatal issue, are its most characteristic features.

It may have to be distinguished from psoriasis, eczema, pemphigus foliaceus, and lichen ruber.

It differs from *psoriasis*, in its absolute universality, which is extremely rarely, if ever, present in psoriasis; the rapidity with which it spreads over the body; the absence of thickening, and the scales never adhering to each other in silvery crusts; the scales being large, thin, papery, and easily detachable; and the absence of red puncta when the scales are detached.

It differs from *eczema* in the first four particulars. It is never in yellow crusts; there is seldom exudation, or, if present, it is usually scanty and partial; but, if abundant, does not stain, and seldom stiffens, linen; and itching is absent, or at least moderate. Neither in eczema nor psoriasis are the general symptoms so severe.

It presents many points of resemblance to *pemphigus foliaceus*, but it differs from it, in that there are no flaccid bullæ, with their attendant disagreeably smelling discharge; and it is, as a rule, more amenable to treatment. Pemphigus foliaceus is most common in women, P. rubra in men. It must be borne in mind,

that the bullæ in pemphigus foliaceus rupture so quickly that they are easily overlooked.

It differs from *lichen ruber*, which also is rarely universal, in its rapid spread, the absence of thickening, the abundance and character of its scales, the total absence of papules, its being less influenced by arsenic, and its not beginning with the characteristic papules of lichen ruber.

It must not be confused with the cases of *general desquamation* following erythematous or other eruptions. Here, when the scales are once thrown off, there is no renewal of them.

Prognosis.—This is always serious, as it is impossible to predict what course the disease will take, and even when it appears to be doing well, sudden relapses may upset previous calculations; still, instead of being uniformly fatal, as at first believed, about half the recorded cases have recovered, some of them from several attacks. Personally, I should say that this mortality is far too high even for universal cases. The partial attacks are, of course, more favourable, but are liable to become universal at any time. The disease is more fatal in children than in adults, and runs a quicker course for good or ill.

Treatment.—This must be both external and internal. *External treatment* is of great use both in relieving discomfort and removing the disease. Oily applications are usually the best; I have seen very good results from wrapping the patient up in bandages soaked in linimentum calaminæ. The lactate of lead liniment and the glycerole of the subacetate of lead have also proved useful. (F. Lin. 2, Lot. 39 and 40.)

Internally.—After correcting, if present, any errors of the digestive system, quinine in full doses, is the best treatment in acute febrile cases. In chronic cases, arsenic is strongly recommended, but it often fails conspicuously, and is, I believe, very unreliable. When the patient is losing flesh, cod-liver oil, iron, and a highly nutritious but easily assimilable diet, and sometimes the liberal use of stimulants, are required. Diuretics are strongly recommended by Dr. Tilbury Fox. The course that I have found very successful is as follows:—The whole of the body is enveloped in bandages soaked in calamine liniment, which should be slightly warmed in cold weather; the bowels are cleared out if necessary, and then pot. bicarb. gr. 20 is taken every four hours, with acidi citrici gr. 12, and quinæ sulph. gr. 3 to gr. 5 during

effervescence. The patient is fed up as much as possible, but stimulants are withheld, as a rule, unless there are signs of vital depression. In all cases, rest in bed is absolutely enjoined, and they should be uncovered as little as possible, as they are extremely sensitive to the slightest chill. I consider it highly dangerous for patients with even partial attacks to go about, and indeed treatment is generally unsuccessful until the patient lies up. Arsenic may be given towards the end of the attack, if some part of the eruption is slower in going away than the rest, and in cases of long duration; but I never find it advantageous in the earlier stages.

PITYRIASIS ROSEA.

Synonyms.—Pityriasis maculata et circinata; Herpes tonsurans maculosus (Hebra).

Definition.—An acute, widely spread inflammatory eruption characterised by pale red, slightly scaly patches or circles.

This is one of the less common eruptions, occurring about once in a hundred and fifty cases in my experience. It was first described by Gibert,* and subsequently by Bazin, Hardy, Horand, and other French writers,† and more recently by Duhring ‡ and Behrend.§

Symptoms.—The eruption is scarcely raised above the surface of the healthy skin, and occurs in two forms, the maculate and the circinate.

P. maculata is in small roundish or irregular, pale red patches, with ill-defined borders, varying in size from a mere dot up to about three-quarters of an inch in diameter, and thinly covered with very fine scales. This is the form originally described as P. rosea by Gibert.

P. circinata is in oval or roundish patches, with well-defined

* Gibert, *Traité pratique des maladies de la peau* (Paris, 1860), p. 402.

† Vidal, *Annales de Derm. et de Syph.*, January 1882, and the other French writers alluded to.

‡ Duhring, *American Journal of the Medical Sciences*, October 1880, p. 359.

§ Behrend, *Berlin klin. Wochenschrift*, 1881, No. 38; also Colcott Fox, *Lancet*, September 20th, 1884.

borders, which, as the patch increases peripherally, soon become more prominent than the centre, and the whole is at first finely scaly, and also pale red; but after attaining about half an inch in diameter, the centre begins to clear, and the larger patches are converted into rings, with pale red, scaly borders, and small fawn-coloured centres; still continuing to enlarge, the ring is broken and ultimately clears away, leaving only the pale fawn-coloured stain. The separate patches may coalesce more or less with their neighbours, and thus irregular gyrate areas of considerable extent be formed. They vary in size, depth of redness, and amount of scaliness. Interspersed among the large patches, are small spots from about the area of a measles papule upwards, and these enlarge peripherally to form the larger lesions. The gradation of the development of the whole process may be thus traced simultaneously, and the eruption may be disappearing on the trunk and still well out on the limbs. There is itching at night, or whenever the patient becomes warm, usually only of moderate intensity, but occasionally severe. The eruption varies in its extent, sometimes being confined to one or two regions, but is generally extensive, and it may be nearly universal. It commonly commences upon the abdomen, but may begin on the upper part of the chest, the side of the neck, and occasionally on the face or arm. Thence it spreads with a varying extent and rapidity over a large area, which may include the whole trunk, face, and limbs in from two to three weeks, but is thickest on the abdomen and buttocks, and is usually sparse below the elbows and knees. Slight febrile and other symptoms of general disturbance occasionally precede the onset of the eruption, and, as Brocq states, a single primitive patch, situated somewhere on the trunk, and usually about the waist, precedes the general outbreak for a week or ten days. It gets well spontaneously, in from two weeks to two months, as a rule, but Vidal had a case which lasted six months.

Etiology.—One-third of the cases are in children, but it may occur at all ages, the extremes in my practice being seven months and seventy years. Sex, position, and season do not seem to have any effect. In short, we are perfectly ignorant of its etiology. Bazin regards it as arthritic. Jacquet states that dilatation of the stomach is a specially common concomitant, and Besnier seems to agree with him, but this could scarcely have any etiological significance. Twice I have seen it in two members of the same family,

and Peroni records an epidemic of it, but it is not generally considered to be contagious.

Pathology.—Vidal ascribes it to a minute fungus, which he calls "microsporon anomœon"; but his description accords more with a micrococcus than a fungus, and micrococci are so generally present in scales that we must pause before we accept it as the *fons et origo mali*, unless the disease can be reproduced from a cultivation of the organism. A patch has not yet been examined histologically.

Diagnosis.—The pale red tint, the slight scaliness and elevation, the widely-spread distribution, the occurrence in patches and circles and the tendency to spontaneous involution, make up the distinctive features of the disease. Vidal considers P. rosea is a separate disease from P. maculata and circinata, the former running a more definite course, the latter alone possessing the special organism; in this respect few agree with him, most authors regarding them as identical diseases, and attaching a secondary importance to the organism.

From *early squamous and circinate syphilides*, the staining and concomitant symptoms of syphilis would be sufficient to distinguish it. The circinate patches are somewhat like *psoriasis*, but much less elevated, much less scaly, lacking the hyperæmic papillæ, and usually not at all conspicuous in the usual psoriasis positions. *Lichen circinatus* is perhaps the most like it, but this eruption is almost limited to the middle of the chest and back, and is never on the limbs, has a papular border, and is primarily papular; moreover, it will last for years if untreated, while P. circinata gets well in a few months at the most, and usually in a few weeks. The large number of patches and extent of distribution, the rapid development, and the absence of the trichophyton fungus, distinguished it from tinea circinata, with which it was confused, even by Hebra.

Prognosis.—This is always favourable, the disease getting well spontaneously.

Treatment.—Since the eruption gets well of itself, no internal treatment is required except to soothe the mind of the patient. Locally, calamine lotion with ten minims of liq. carbonis detergens to the ounce, allays the itching and perhaps expedites the cure. Sponging firmly with a lotion of sodæ hyposulphitis ʒiij, glycerine ʒj, aq. flor. samb. ℥viij, seemed to answer well in my hands.

S. Mackenzie believes, that boracic acid ointment is most effectual. Sulphur baths, preceded by tar soap, are recommended by Vidal; but the first-named lotions I have always found sufficient.

PITYRIASIS RUBRA PILARIS (Devergie).*

Synonym.—Lichen ruber acuminatus of Kaposi (one form only).

Definition.—A primarily non-inflammatory (?) disease, characterised by follicular papules, with horny centres, tending to become general or even universal in distribution.

Although the first clearly described case was that communicated by an Englishman, Claudius Tarral, to his former master, Rayer, from a case in St. Bartholomew's Hospital in 1828, it is from French authors, especially Devergie, Richaud, Besnier, and Brocq, that we derive a clear idea of this affection, which is so rare in this country that no recognised case has been recorded in England since that of Tilbury Fox in 1873, though Jamieson has had one in Edinburgh.

At the Dermatological Congress in Paris in 1889, and since, there has been a warm discussion as to whether pityriasis rubra pilaris was identical with lichen ruber acuminatus of Kaposi, which has hitherto been supposed to be the equivalent of Hebra's lichen ruber. On the one side is Kaposi, who of all men ought to know what Hebra meant by lichen ruber, who regards them all as one affection; while on the other is the French school, which holds that while pityriasis rubra pilaris is identical with Kaposi's lichen ruber acuminatus, it is not identical with the lichen ruber of Hebra. Hans Hebra, and recently Neumann, who also ought to be well acquainted with Hebra's lichen ruber, have adopted the French view, and regard pityriasis rubra pilaris and the lichen ruber of Hebra as independent diseases. The cases described by Taylor† and others in America as lichen ruber are generally admitted to be the equivalents of pityriasis rubra pilaris.

* *Literature.*—Besnier's valuable monograph, republished from *Annales de Derm. et de Syph.*, vol. x., 1889, with coloured illustrations, gives a very complete clinical account, and the history to date. Also a *résumé* in Kaposi, Besnier-Doyon ed. 1891, vol. i., p. 385; Brocq, 1892, p. 644, and previous monograph.

† Very well described and highly illustrated cases in the *New York Med. Jour.*, January 5th, 1889, with histology.

English experience is too scanty for me to do more than record the present condition of the controversy, and wait for further knowledge. The following description is derived from Brocq's treatise.

The most characteristic feature of the disease is the development of hard, dry, brownish-red papules seated at the hair follicles; these with a lens show an atrophied hair in the centre, surrounded by a sort of horny sheath, which penetrates into the follicle. The papules vary in size from a small pin's head to a millet seed, occasionally to a hemp seed, and are seen most abundantly on the limbs, chiefly on the back of the hands first, and slightly on the second phalanges, the wrists, forearms, elbows, and knees; on the body, they are most abundant about the waist and lower part of the abdomen, but are not confined to these regions. These papules are not the primary phenomena as a rule; more frequently the first parts attacked are the palms and soles with scaly patches like psoriasis palmaris, or the scalp with a seborrhœa sicca, which may form a thick, whitish, adherent crust, or, which is less frequent, the face is the first involved, and becomes covered with fine, firmly adherent scales all over it. The characteristic conical papules soon follow, and as the disease progresses, become first rounder and then flattened (Taylor), increase in numbers, crowding together until they become confluent patches with discrete papules round. The patches are pale or yellowish-red, slightly thickened, and uniformly covered with scales, which are usually fine and branny, very like psoriasis on the elbows and knees, but they may be glistening and adherent, or in rare instances flaky. Deep folds are formed at the joints, and the enlarged papillæ may have an ichthyotic appearance. Pruritus is absent or only slight. In extreme cases, the eruption is universal, and the whole surface dry and scaly like a pityriasis rubra, and at the worst, small blackish conical elevations may be found round the hairs on the back of the fingers. The face, if attacked, may, according to Besnier, be either white with fatty scales, or red and branny, xerodermic, or present a combination of these alterations. The nails are softened, greyish, with longitudinally yellowish striæ. There may be hyperidrosis, but the general health is good. The course is slow, irregular, and uncertain, from temporary ameliorations, even apparent cures, being followed by inexplicable aggravations or recurrences.

The *pathology* is unknown; but Jacquet and Taylor have shown that anatomically there is an increased hornification of the epithelial wall of the orifice of the follicle, to which the dermal inflammatory changes are probably secondary.

Diagnosis.—The characteristic features are: the follicular papules, with a horny plug in the orifice of the follicle, which can be picked out, and produces a cribriform aspect; the dry scaliness of the palms, soles, scalp, and face; the inconspicuous inflammatory changes; and, finally, the absence of any disturbance of the general health—in other words, its benign course as compared to the other forms of universal dermatitis. The diseases it most resembles are pityriasis rubra and the lichen ruber of Hebra. From pityriasis rubra, it would be distinguished by the trifling hyperæmia as a rule, the small scales, the presence of the diagnostic blackish cones on the back of the fingers, the absence of constitutional disturbance, and its uniformly benign though chronic course. The distinctions from lichen ruber will be pointed out in the description of that disease.

Treatment.—Effort should be made to restore the sweat secretion by subcutaneous injections of pilocarpine nitrate gr. $\frac{1}{6}$, and active exercise, combined with alkaline baths, frictions with soft soap, followed by pyrogallic acid, which Brocq says is especially efficacious, or oil of cade or resorcin, which can be used over larger surfaces than pyrogallic acid, or mercurial applications, which are also valuable for limited areas. In short, the treatment is that for psoriasis, except that arsenic is contra-indicated on account of its tendency to increase keratinisation of the tissues, which is already excessive, and marked aggravations have followed its injudicious use. Brocq says, however, that arseniate of soda may be beneficial sometimes, if given cautiously. If active inflammation sets in, the treatment would be that for pityriasis rubra.

Parakeratosis Variegata. Under this designation, which follows Auspitz in giving the generic term parakeratosis to anomalies of keratinisation, such as are met with in psoriasis, pityriasis rubra of Hebra, pityriasis rubra pilaris, etc., Unna, with his pupils Santi and Pollitzer, describe two cases. The first, a man of thirty-three, was sent to Hamburg by Besnier, who at first thought it was a general lichen planus, but subsequently concluded that it was *sui generis*. The patient had always enjoyed excellent health.

No history or signs of syphilis. The affection appeared four years previously on the thighs, breast, and neck, and subsequently covered the entire body except the head, palms, and soles, without the slightest subjective symptoms throughout its course. The greater part of the body was covered with a red exanthem, leaving small, irregular, sunken patches of normal skin on the trunk and thighs; over the reddened portion there was a fine lamellar desquamation. The colour became deeper on the lower portion of the body, but was not uniform even for the same region, varying from yellowish-red to bluish-red. The affected parts were but slightly raised above the surface; their borders were sharply defined, their articular areas slightly marked, their surface waxy and bright beneath the scales. The larger patches felt decidedly infiltrated like an erythema papulatum; the smaller patches resembled recent lichen planus papules.* The second case, was a healthy man æt. twenty-seven, in whom the disease had existed seven years without any subjective symptoms or any noticeable change since the eruption first appeared. It was paler, but otherwise like the other case. The name variegata refers to the reticulated appearance, from the small areas of healthy skin between the red raised eruption.

The cases were rebellious to treatment, but yielded to pyrogallic acid applied vigorously, with large doses of dilute hydrochloric acid internally to prevent the poisonous absorption of pyrogallic acid. The above description suggests an anomalous form of lichen planus.

In plate viii. of the *International Atlas*, Unna also describes a case which he calls parakeratosis scutularis, allied in physical character to pityriasis rubra pilaris, but with pale yellow crusts.

LICHEN.

Deriv.—λειχήν, a lichen.

The term lichen was applied by Willan and his followers to a heterogeneous collection of diseases, to some of which it still belongs, with the single property in common, that papules are the conspicuous feature in some part of their course. The lichen class is now restricted, as Hebra proposed, to those diseases

* "Über die Parakeratosen im Allgemeinen und eine neue Form derselben (Parakeratosis variegata)," *Monatsh. f. p. Derm.*, vol. xi. (1890), and abstract in *Brit. Jour. Derm.*, vol. ii. (1890), p. 217, by Pollitzer.

in which inflammatory papules, undergoing no metamorphosis during their whole course, constitute the main feature of the disease. Under this definition come—

L. ruber (Hebra).
L. planus (Wilson).
L. ruber acuminatus (Kaposi), seu Pityriasis rubra pilaris (*q.v.*).
L. scrofulosus.
L. pilaris (inflammatory).

Before describing this group it is desirable to state briefly what it does not include, as much confusion is produced by the loose way in which the term has been, and is still applied, by those who have not paid special attention to the subject. Each affection is fully described in its proper place.

L. Simplex is still regarded by some authors as a definite disease, but there can be little doubt that it is really a papular eczema—of which **L. agrius** is a variety.

L. Urticatus is the urticaria of children, in which the wheals are succeeded by inflammatory papules, and in some cases the wheals themselves are not larger than papules. **L. pilaris** is often used instead of keratosis pilaris. **L. lividus** is hæmorrhage into the hair follicle or follicular purpura. **L. tropicus**, or prickly heat, is an inflammation of the sweat apparatus, and is therefore a form of miliaria. **L. strophulosus**, "red gum," is also a sweat rash, or miliaria of young infants. **L. syphiliticus** is applied to two forms of papular syphilides, in which the lesion is at the hair follicle.

L. Circinatus is one of the forms of seborrhœic dermatitis of the body.

LICHEN RUBER (Hebra).*

Synonym.—Lichen ruber acuminatus.

Definition.—A chronic inflammatory general eruption, consisting of red miliary conical papules, which increase in numbers, until they coalesce into chronic infiltrated scaly patches.

* *Literature.*—Kaposi, "Ueber die Frage des Lichen," *Archiv f. Derm. u. Syph.*, vol. xxi. (1889), p. 743. Hans von Hebra, "Lichen ruber and its connection with Lichen planus," *Brit. Jour. Derm.*, March 1890. Neumann, "Ueber Lichen ruber acuminatus, planus, und Pityriasis pilaire," *Archiv f. Derm. u. Syph.*, vol. xxiv. (1892), p. 3.

This disease was originally described by Hebra from thirteen fatal cases. Subsequently other observers have published cases under this name, but they have not all been identical with Hebra's original lichen ruber, and there is some reason to think that Hebra himself included more in his subsequent writings than he did at first. Kaposi, who did not see Hebra's original thirteen cases, yet should know his views well, subsequently divided lichen ruber into lichen ruber acuminatus and lichen ruber planus, and he, Hans Hebra, and C. Boeck claim to have seen cases of both these diseases in the same individual, either simultaneously or successively. This association is, however, too exceptional to argue upon, and it is a singular fact that while lichen planus, both limited and general, is not uncommon in England, I myself having seen two hundred cases, lichen ruber acuminatus in Hebra's sense is practically non-existent here, as I am not aware of a single undoubted case being recorded. I have, however, several times seen some few conical and convex papules in a general lichen planus, and once saw a case which I thought at one time must be a lichen ruber, but now regard it as an anomalous case. Kaposi himself considers that his lichen ruber acuminatus and pityriasis rubra pilaris are identical; so it is best to follow Hebra's own description, and consider it an independent affection until there is more conclusive evidence to the contrary.

Lichen ruber, when general, is attended with severe symptoms, such as shivering, rigors, general aching, and itching, followed by profuse perspiration.

The eruption consists of disseminated, firm, conical red papules, from a pin's head to a millet seed in size, smooth at first, but soon capped with minute scales. They feel, when closely set, like a nutmeg-grater, but at first they are widely separated, the intervals becoming gradually filled up with fresh papules, which itch intensely. The process is rather acute at first, and spreads over the whole trunk, though occasionally it affects the flexures alone. By a repetition of the process, the whole skin may be involved, so that it becomes reddened, scaly, and much thickened, at first in patches, and ultimately in a diffuse infiltration interfering with the movement of the joints. The skin of the palms, soles, fingers, and toes is worse than the rest, and deep fissures extend to the corium. The nails of both fingers and toes are affected, being sometimes of a dirty brown colour, rough, flaky, and breaking off short, and

much thickened if the nail-bed is involved; while, if growing out only from the matrix, they are thin, brittle, longer than the finger, and lighter-coloured than normal. The larger hairs of the head and trunk are not involved. The worst form of the generalised disease, if untreated, leads to marasmus and death, but even in these cases the controlling power of arsenic and judicious local treatment have materially improved the chances of cure.

The above follows Hebra's description of the most severe forms, but all these developments are only seen in old-standing cases. If suitably treated, it will not attain to this intensity, and may be cured fairly easily. In milder cases, the face may escape or be simply scaly, the palms and soles also are only badly attacked late in the disease, but flat, transparent papules on the palms and soles, and flat, itching erosions on the tongue, are described by Unna as occasional manifestations.

Practically nothing is known as to its etiology and pathology, and while its anatomy has been repeatedly investigated by Neumann, Biesiadecki, and others, their observations, made in an advanced stage, showed a chronic inflammatory process deep in the corium, in and around the hair follicles, whose sheaths by proliferation of the cells were enlarged into knob-like and spigot-shaped excrescences. The other changes were such as may be found in other chronic forms of dermatitis, *e.g.*, prurigo.

Diagnosis.—The leading features are the distinct, red, miliary papules with slightly scaly caps which occur especially on the limbs, but with a tendency to generalise and form dark red scaly infiltrations. The individual papules do not enlarge, the patches being formed by filling up the intervals with fresh papules.

L. ruber, whilst discrete, might be mistaken for *eczema papulosum*, *psoriasis punctata*, or *pityriasis rubra pilaris*. In L. ruber, the papules are persistent, more pointed, with a cap of scales, and do not change; while in eczema, the papules may become vesicular or disappear, and if there are any scales, they are more scanty. In *psoriasis punctata*, each lesion soon enlarges, with characteristic scales. The universal form differs from *universal psoriasis* in the thickening of the skin in L. ruber, especially on the palms and soles, which are rarely affected in psoriasis, while in L. ruber there is much less scale formation. In psoriasis, the scales are either copiously thrown off or adhere in silvery crusts, and some patches of skin nearly always remain healthy.

Neumann draws the following distinctions between *lichen ruber* and *pityriasis rubra pilaris*. Comparing the papules on the trunk, those of L. ruber are persistent, pin's-head-sized, brownish-red, and glistening, but slightly scaly, with a central pit. When they disappear, they leave a brownish-red, deeply furrowed, infiltrated surface. In P. rubra pilaris, the papules in this part are punctiform, with thin scales; they soon flatten down, and leave a soft, non-infiltrated, pale red, scaly surface. On the forearms the papules are larger, and on the backs of the phalanges millet-seed-sized, and when the scale comes off are pitted, so that the surface is cribriform. The papules are limited to the hair follicles.

In L. ruber, the nails are yellowish-brown, thickened, brittle, and uneven, while the thick hairs are unaffected. In P. rubra pilaris, the nails are only secondarily affected, being raised up from beneath by new nail substance, and laterally compressed. In universal L. ruber, nutrition is profoundly affected. In P. rubra pilaris, it is unaffected. Itching is a marked symptom in L. ruber; in P. rubra pilaris there is no itching or other subjective symptom. Arsenic is almost a specific in L. ruber; it is often injurious in P. rubra pilaris, and must always be given with caution.

Emollient applications smooth down the papules of P. rubra pilaris, but have very little effect on L. ruber.

Treatment.—The Vienna authorities consider arsenic a specific for the disease, unless it has gone on too far, so that the patient is emaciated and exhausted.

Hebra lost all his generalised cases until he tried arsenic. It may be needful to give it in heroic doses for a long period in the form of liquor arsenicalis (ɱv to ɱxv, or more if the patient's stomach can bear it, three times a day, of course largely diluted), or, as Köbner suggests, ɱiv of Fowler's solution to ɱxx of distilled water injected hypodermically every day for three or four weeks, or in the form of Asiatic pills, three, gradually increasing to ten a day, each pill being equal to one-twelfth of a grain of arsenious acid. Kaposi gave as many as 4,500 of these pills before a cure was effected, and without evil consequences. For reasons before mentioned, I prefer the liquor arsenicalis, and have tried the hypodermic injections in only one case of anomalous universal lichen; some improvement ensued, and then pityriasis rubra developed. This method is too painful for most people.

Locally, alkaline baths, followed by inunction of pyrogallic acid

℥ss to ℥j as an ointment, should be rubbed in, but not over too large a surface; in short, the treatment in the main is on the same lines as that for psoriasis or general lichen planus.

LICHEN PLANUS.

Synonyms.—Lichen ruber planus; Lichen psoriasis (Hutchinson).

Definition.—Lichen planus is characterised by the presence of inflammatory papules, of which the most characteristic are flat and angular, either discrete or confluent, and of some shade of red.

In the first edition of this work, L. planus was treated as one of the varieties of L. ruber, but since there is so much dispute about L. ruber acuminatus of Kaposi, as stated under Pityriasis rubra pilaris, we shall be on more solid ground if the L. planus of Wilson is treated as an independent disease, the more so as it is an affection with which we are well acquainted in England, while our knowledge of L. ruber is almost entirely derived from the Vienna School.

L. planus may be acute and general, or chronic and limited to a few regions. The chronic is by far the more frequent, and will be first described.

Symptoms.—L. planus, a rather uncommon and well-defined disease, presents itself under two aspects, viz., papules and patches, the patches resulting from the aggregation of the papules. It is usually localised to a few regions, but it may be general.

It commences as flat, slightly raised, discrete papules, varying from one-sixteenth to a sixth of an inch in size, of angular outline, smooth-shining surface, with a small depression in the centre of many of them, and of a purplish or crimson colour. They are either scattered, or arranged in irregular groups, lines, or bands, which run in the direction of the length of the limb, or less frequently, transversely to it. By the close aggregation of the papules, and by their increase in number, not in size, patches are formed, generally of small area, but large sheets of infiltration may be produced. These patches present a very different aspect to the papules. When small, they may be roundish, with a depressed centre, but when large, they have an irregular, well-defined outline, are raised considerably above the surrounding skin, have a purplish

hue, and are covered with thin scales, a feature rarely seen in the papules.

The commonest situations for the eruption, and where it most frequently commences, are the flexor aspect of the wrist and forearm, and next the inner side of the knee ; but no external part of the body nor even the mucous membranes are altogether exempt from attack.

Symmetry, more or less obvious, is the rule, but I have seen the eruption unilateral ; and in a case shown at the Dermatological Society by Dr. Stephen Mackenzie, the eruption was in the course of the left ulnar and internal cutaneous nerves ; in another, as related by him, it began in the course of the intercostal nerves like a herpes, and subsequently, after a long interval, became general.

In a lady of fifty, sent to me by my friend Gilbert Smith, a succession of connected rings of eruption extended from the vulva downwards and backwards to the middle of the calf, apparently following the course of the small sciatic nerve. The borders were composed of brownish-red, flat papules, with yellowish staining in the centre. There were abundant characteristic L. planus papules on the abdomen. The patient was a highly neurotic subject.

The papules and patches on their disappearance leave behind them slight atrophic depressions, with long persistent stains, varying from a fawn colour to a bluish-black tint, according to the duration and severity of the inflammation.

Itching of moderate intensity is generally present, and may precede the eruption ; occasionally it may be intense, and is very rarely absent altogether ; sometimes no defect of the general health can be detected, but more often there is some, usually in the direction of neurasthenia or dyspepsia.

Course.—The disease may last for years, and if untreated tends to spread ; and even with suitable treatment requires several weeks, or even months, for its removal, while the most severe generalised form may lead to marasmus and death. It recurs in some people,* but at much longer intervals than in psoriasis, and not so frequently.

The *acute* form may be primary or supervene on the chronic form, but not necessarily spreading directly from the old patches. It generally commences on the limbs, but may affect the trunk first. It spreads slowly or rapidly ; in the latter case perhaps cover-

* In one of my patients the disease recurred every July for four or five years, and her first attack was fifteen years before I saw her.

ing the whole body in a few days. The face and scalp are seldom attacked, and the palms and soles often escape. The rest of the body, including the neck, is more or less implicated, but there are generally clear areas. The lower half of the body and limbs is usually more affected than the upper. The papules are usually small, flat, or slightly convex, angular, shining, and of a very bright red, so that as far as colour is concerned lichen ruber planus would be an appropriate title, while it does not fit so well the lilac hue of the chronic form. There is a tendency to irregular grouping of the papules, and to follow the natural lines of the skin. Although the papules may be densely crowded together, their outline is generally distinct for a long time nearly all over the body; but when the disease has lasted some time, the papules coalesce and become covered with small scales, which may almost conceal the red surface beneath. Itching is always a prominent symptom, and may be very severe, but the constitutional disturbance is seldom very pronounced at first. Although acute in its development, it is often chronic in its course, unless the patient takes to his bed, and submits himself to appropriate treatment.

Variations, etc.—When carefully examined with a lens, the natural lines of the skin are found to form the boundaries of the papules, and many papules, instead of being simply angular, show minute processes at the edge, like a keloid on a small scale. Their surface is dotted with red points, representing the apices of the hyperæmic papillæ below, and minute dilated vessels are visible between the papules, accounting for the diffused red hue observed in some cases.

The papules are not always so flat as described; they may be convex, as in a gentleman * from Brazil, in whom an eruption came out soon after his return to England, and when I saw him eleven months later, nearly all the body was covered with an eruption of papules the size of a pin's head and convex; they had some tendency to irregular grouping, and while at first sight they looked as if seated at the follicles, a lens showed that the hair was often at the side, not in the centre, of the papule.

In model 1435 of the St. Louis Museum, labelled **Lichen obtusus**, the papules on the arm are from a quarter to half an inch in diameter, and lenticular in outline. They may also be more or less conical and slightly scaly. These varieties may occur alone,

* *Private Note-book*, B., p. 147.

or, what is more frequent, associated with the characteristic lesions in other parts.

Unna's * description of "L. ruber obtusus," which has just been alluded to, is as follows: "It consists of medium-sized papules, averaging three to five mm., though sometimes reaching the size of whole pepper, and even that of a pea, hemispherically formed, flattened on the top, and provided in the centre with a fine indentation, hard, dry, smooth, wax-like, translucent to brownish-red, and scaleless. Independently of their colour, those of molluscum contagiosum are perhaps the only papules resembling them. L. obtusus is far less acute than L. acuminatus, itches less, and is mostly circumscribed. Left to itself, it may within a few weeks spread over the whole body, though in such a case, larger areas of healthy skin are generally met with between the single efflorescences. Papules standing near together may form larger plaques, in which case those in the centre atrophy or remain. The hair and nails never suffer."

In an extraordinary case of Kaposi's,† besides the ordinary papules and plaques, there were thick moniliform bands in the flexures of the limbs, on the abdomen, and on the neck. In the last position, which was completely surrounded down to the clavicles, they were like hypertrophic burn cicatrices. Microscopically, the bands were made up of dense cell infiltration, chiefly in the deep part of the corium, without any connective tissue formation. No cause could be discovered for this unusual development. Rona has reported a similar case to the Buda-Pesth Medical Society.‡

The papules are usually described as having the hair follicles for a centre, but this is seldom the case in L. planus, the hair, if present, being at the side of the papule, and the follicle may not be involved at all. When papules first form, their colour is often the same as the normal skin, and they are recognisable only on looking obliquely along the surface, by their smooth shining appearance, while they are bright red when they develop acutely.

A very rare variety, of which I have seen two instances, is where the lesions are of a deep crimson tint, very soft to the touch

* "Clinical History and Treatment of 'Lichen ruber,'" *Medical Bulletin*, Philadelphia, 1885. An interesting essay, with many cases.

† *Viertelj. für Derm. u. Syph.*, vol. xiii. (1886), p. 571, "L. ruber moniliformis," with coloured plate.

‡ Quoted by Kaposi, *loc. cit.*, vol. xiv. (1887), p. 279.

instead of firm, and look more like an erythema than L. planus, as they can be temporarily obliterated on pressure, and the epidermis is evidently not involved. One case was a gentleman past middle age. The eruption had existed for a year, and was in closely aggregated, small papules, limited to the groins and large areas on the trunk. The other was not under my care, and the disease had been present over two years, and was very extensive. There was also much telangiectasis of the face and mouth.

Pemphigus-like bullæ in the course of L. planus have been observed by Morrant Baker, Unna, Kaposi, etc.

Next in order of frequency to the two positions already named, come the leg below the knee, the ankle and foot, the extensor surface of the arm, the flank, hip and lower part of the abdomen, the palms, soles, and wherever there is friction or irritation. The rarest seats on the skin are the fingers and lips.

The position of the lesions exercises a modifying influence upon their aspect. Thus, upon the palms and soles, there is only general thickening of the epidermis, with perhaps white spots where the horny layer is cracking; on the tongue, they usually appear as white spots, symmetrically placed on each side of the raphe, and scarcely raised above the surface; but in one case of mine, there were in addition to the white spots smooth, flat, angular, very slightly raised papules of the same colour as the rest of the tongue. On the buccal mucous membrane, white branching streaks may not infrequently be seen, most marked opposite the teeth. On the penis, their appearance varies, being white or of the usual colour, according to whether the glans is covered with the prepuce or not; *i.e.*, whether the part is moist or dry, the glans being the usual site of the eruption. In a little girl under my care, the eruption had the aspect of white spots inside the vulva; moreover, I have seen it on the outer side of the vulva in the adult. These lesions of the mucous membranes, especially when upon the penis, may precede the skin eruption by some weeks or months.

When the disease has existed for a long time,—and it may last an indefinite number of years if untreated,—the papular part clears up, leaving the patches to undergo great thickening, usually aggravated by scratching; the papillæ enlarge, and are covered with dense horny crusts, so that the whole has a warty aspect, but usually of a dirty lilac hue. This is especially likely to happen on the lower part of the leg, but may occur in any part of the lower

limb, the infiltration sometimes extending over a large part of the thigh. This is **L. planus verrucosus.**

Children.—When occurring in childhood—a rare event—the disease takes the same characters and follows the same course as the acute and chronic form of adults; but there is an infantile form which is different in development and course. The eruption comes out acutely in groups, each papule of which is sometimes acuminate at first, but the top seems to die down and a scale come off, leaving a smooth, shining, angular papule, of a brighter red than usual, though it may get a purplish tint subsequently. It may be on the limbs or trunk, or both, is attended with considerable itching, and gets well in a few weeks with the help of a soothing application, such as calamine lotion and a ferruginous tonic.

Rickets was present in some of my cases, and conjunctivitis in one; in another it was associated with ordinary miliaria rubra, and others have been apparently healthy.

Liveing is the only author I know of who has noticed the milder character of these cases, but a well-marked case is recorded by Tilbury Fox, and Kaposi mentions having seen one case at eight months which was probably of this kind. Colcott Fox* has recently published a series of cases. I believe that they are most frequent in infants who sweat profusely, and probably a sudden chill while in a profuse perspiration, is the determining factor. This view would account for its appearance in children with rickets, and even congenital syphilis, and would bring this form into closer relationship with the acute cases of adults.

Etiology.—The most common cause is nervous exhaustion, consequent upon worry, anxiety, or overwork, deficient food, especially in a nervous temperament, but derangements of the digestive or generative system are not infrequent, while in some cases no cause whatever can be made out. The acute general cases are, I believe, sometimes determined by a chill during perspiration.

Age.—It occurs mainly between twenty and sixty. Among 154 cases at the hospital and in private, 118 were within those limits, 65 between forty and sixty. The extremes were four and seventy-two years, but Kaposi mentions a case of three only. The infantile cases are excluded for the foregoing reasons.

* "Notes on Lichen planus in Infants," *Brit. Jour. Derm.*, July 1891.

Sex.—In England it is more frequent in women. In 114 hospital cases, the women were as seven to four, and other English cases tend in the same direction. In Vienna, just the reverse holds good; Kaposi says two-thirds are males. Possibly the much greater frequency of the L. ruber there, may account for the discrepancy, as that seems undoubtedly more common in males.

Pathology.—In L. planus, the process appears to be inflammatory, beginning usually round a sweat duct in the upper part of the corium, with subsequent thickening of the rete and enlargement of the papillæ by downgrowth of the interpapillary processes, the papillary vessels being dilated. In the infiltrations these secondary changes form the most conspicuous part of the process.

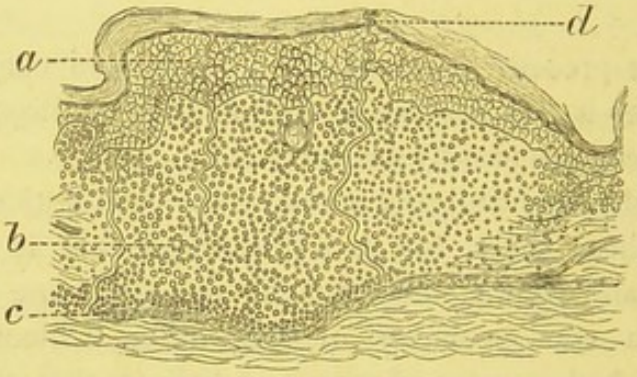

Fig. 18.—A recent papule of lichen planus. × 120.

b, copious round cell effusion from vessel; *c*, lifting up epidermis into a papule; *a* and *d*, several ducts traversing papule.

The pathological factor which gives rise to the inflammation still requires elucidation. Colcott Fox suggests that it is only the consequence of neuroparalytic hyperæmia, but more evidence is required before this can be accepted. The fact of its having an occasional nerve distribution is no ground for supposing a disease to be of nerve origin.

Anatomy.—I excised recent papules from five living patients and the border of an infiltrated patch from one, and found the anatomy to be as follows:—

A vertical section through a recent papule of L. planus reveals a mass of cells like leucocytes, and embedded in this are sometimes seen fragments of the fibres of the corium, in the most superficial part of which the effusion has taken place. Sharply limiting the cell mass below lies a blood vessel, and it is through its upper wall that it is inferrible that the cells have passed. There are usually no cells below the vessel.

The condition of the rete varies. When the effusion of leucocytes is considerable—*i.e.*, when the process is acute—the rete is forced upwards,

and is very little thickened, or indeed may even be thinned in the centre, slight thickening being evident at the sides only and in the immediate neighbourhood of the papule (fig. 18). When, on the other hand, the inflammation is not so acute, the rete is immensely thickened by proliferation of its cells. The thickening compresses the cell effusion below

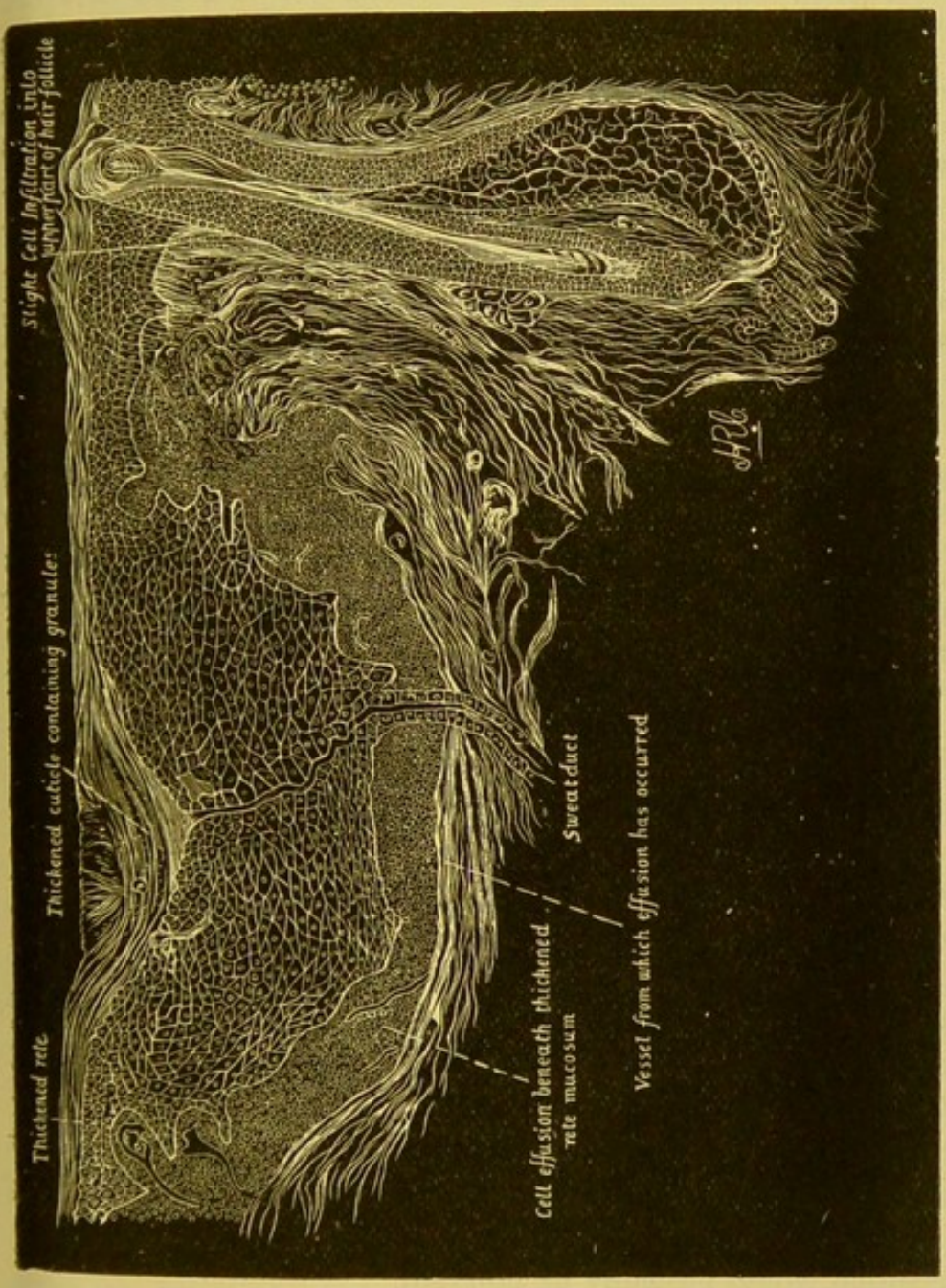

Fig. 19.—A papule of lichen planus, either older than the one depicted in fig. 18, or formed by a less acute process. The hair follicle by the side of the papule is quite healthy, the papule being formed round a sweat duct.

it, obliterates some of the papillæ, while others are enlarged by the down-growth of the inter-papillary processes (fig. 19). Thus, in the first case, the cell effusion forms the greater part of the papule, while in the second, the proliferated rete has the larger share.

The horny layer is only slightly thickened except in the centre of the papule in the second phase, where it forms a sort of conical plug fitting

into a depression of the rete, its apex corresponding with the orifice of the sweat duct. The desquamation of this plug affords a ready explanation of the familiar clinical feature of a central depression in the papule. It appears to me much more probable than Biesiadecki's theory that the depression is produced by the tetanic contraction of the arrector pili muscle pulling the surface down. The falling out of a hair does not account for it, as the hair follicles are seldom the seat of the process. As seen in the figure, a sweat duct may so frequently be traced down the centre of the papules, that I cannot but think they act, at least, as determinants for the starting-point of the process, the deep-lying sweat glands being unaffected. It is common also to find a healthy hair follicle adjacent to the papule. The vessels are only slightly dilated in this stage. In a papule with a hair in the centre, a comparatively rare circumstance, I found thickening of the rete adjoining the hair follicle, slight effusion at the angle of the follicle and rete, and perhaps slight thickening of the upper part of the former; the lower part was entirely unaffected. I have only once seen a cell effusion round the transverse section of a hair follicle deep in the corium. In sections from the border of a patch, there was enormous thickening of the rete, the cell effusion adjoining had undergone partial fibrillation, and the vessels were enormously dilated. There were no hair follicles in the piece examined, and it was not sufficiently deep to show the lower part of the corium. Robinson of New York, Caspary, and Török * have since confirmed the above statements as far as the anatomical facts are concerned, but Török explains them somewhat differently. The older descriptions by Neumann, Biesiadecki, etc., were made from chronic cases of L. ruber, and are therefore totally different.

Diagnosis.—In L. planus, the discrete, flat, angular, shining papules are so distinctive, especially when they have a purplish tint and are situated on the wrists or over the vastus internus, that there is no disease with which they could fairly be confounded. Some of the patches, however, when raised and scaly, might be mistaken for *chronic eczema* or *psoriasis*. One point will nearly always decide the question—*it is very rare not to find some of the characteristic papules or their stains in the neighbourhood of the patch.*

Other points in the diagnosis from *chronic eczema* are: The disease began as flat papules, there has never been discharge nor crusts, the colour is more bluish (except in acute cases), and the position would probably be different.

From *psoriasis*, it began as smooth, not scaly, papules, which

* "Anatomie du Lichen plan.," by L. Török, *Jour. des Mal. Cut.*, 1889, with references to literature. Also in German, illustrated in Ziegler's *Beiträge z. path. Anat.*, Band viii. Caspary gives a figure closely resembling my second figure.

did not enlarge at their periphery. The scales on the patch are thin and not heaped up; on their removal, their colour is purplish or dull red, instead of bright red. Unless situated on the extensor aspect, the position might help here also.

Prognosis.—This is generally good for ultimate recovery, but the patients often improve slowly.

Treatment.—The treatment in the main, is on the same lines as that of psoriasis, except that, as a rule, the local applications require to be rather milder. There are three indications to be followed: first, the improvement of the general health, especially as regards the nervous exhaustion; secondly, the relief of the itching by local means, which will go far towards the removal of the eruption; and thirdly, the employment of arsenic, a drug which experience has proved to be almost a specific in chronic, but is often unsuitable for acute cases. In fulfilment of the first indication, rest for the over-tasked nervous system is frequently essential, and in widespread and acute cases, bed is by far the best place for the patient; in some cases, change of air and surroundings and improvement of the general nutrition and tone, is the line to be followed; feeding the patient up with easily assimilated food frequently administered, cod-liver oil, nervine tonics, as iron, in full doses, quinine, the mineral acids, and nux vomica, may do the rest. If, however, the digestion is disordered, that must first be corrected by the removal of constipation, dieting, alkalies, bismuth, bitter tonics, etc.

Where arsenic fails, Liveing recommends bichloride of mercury, and Tilbury Fox advocated diuretics, followed by the mineral acids and nux vomica. These measures and suitable local treatment, are often adequate to cure, without the administration of arsenic. Nevertheless, these means may only be a necessary preliminary to an arsenical course. For example, in cases when an irritable condition of the alimentary canal exists this must be subdued before it is safe to give the drug. Some patients are intolerant of arsenic, and there are some cases where it seems even to aggravate the eruption. Tilbury Fox seldom gave arsenic, and in many localised cases and in the verrucose patches its influence is very slight. For the less severe cases, it may be said that arsenic is likely to be most useful in proportion to the chronicity or low intensity of the inflammation, where there is no defect of the general health that can be better removed by other

means. In acute, widely spread cases, large doses of quinine in an effervescing mixture, as in pityriasis rubra, have succeeded well in my hands.

External treatment will materially influence the duration of the eruption. Some form of tar is almost as generally useful as arsenic, but, like arsenic, tar is recommended with reservations. It is very likely to disagree where there is intense hyperæmia, as such cases will not tolerate skin stimulants; here calamine lotion or liniment or inunction of oil or vaseline, with a little liquor plumbi subacetatis, or other soothing applications, like those referred to in the treatment of acute eczema, give most relief. The inunction of olive oil, with acid. carbolic. gr. 10, or gr. 20 of thymol or ol. rusci ♏x to ℥j, is often very serviceable in relieving the itching. In nearly all other cases, some form of tar is very beneficial. As a rule, I prefer liquor carbonis detergens ♏x up to ʒj, to one ounce of water or calamine lotion, dabbed on several times a day; thymol or naphthol gr. 10 to ʒij to ℥j of lard or vaseline, or as a lotion have been found very useful. Where strong remedies can be borne, nothing, in my opinion, acts so quickly as the soap and spirit liniment with ʒss to ʒiv of oil of cade to the ounce. As a rule, the best plan is to begin with a weak application and gradually to increase the strength. Other remedies recommended are salicylic acid or bichloride of mercury lotion. Unna's formula of gr. 20 of carbolic acid and gr. 2 to 5 of hyd. bichlor. to the ℥j of zinc ointment has often been serviceable in my hands; ol. rusci ♏xx, ung. hydrarg. ammon. ℥j, is another useful formula. Alkaline and bran baths are likely to do good in almost all cases, and tar or sulphur baths sometimes. Jacquet strongly recommends hydrotherapy in the form of tepid douches for several minutes, to be followed by momentary cold ones. The verrucose patches are very rebellious to treatment. Unna's salicylic plaster, applied until the hardened epidermis can be removed, is a useful preliminary. Then the pure oil of cade should be brushed in, and a solution of bicarbonate of soda, ʒij to the pint, applied on lint under oiled silk. It has been recommended to lightly stroke the patch with Paquelin's cautery, and then apply boric or other mild antiseptic ointment; but this is rarely necessary, and few patients would consent to it, as the patches give very little inconvenience except itching. Time alone removes the pigmentation left after the removal of the papules or patches.

LICHEN SCROFULOSUS.

Synonym.—Lichen scrofulosorum.

Definition.—Lichen scrofulosus is characterised by very small chronic inflammatory papules, of a red colour, fading to that of the normal skin, disposed in groups or circles, and occurring mainly in scrofulous subjects.

Until a very few years ago, it was unrecognised in England, being overlooked on account of its being inconspicuous and on the trunk, accompanied by little or no itching, and therefore giving rise to no inconvenience. All my milder cases were discovered accidentally. Although commoner than supposed, well-marked cases are rare. Neumann reckons it at 3 per 1,000 cases of skin diseases in adults, and 5 per 1,000 in children. I have looked out for the disease since 1878, and up to the end of 1882 had only seen fifteen cases, fourteen of which were hospital cases, all children: three at University College Hospital, where the patients were all cases of skin disease, and eleven at the East London Hospital for Children out of about 1,000 cases of skin diseases occurring in 6,500 cases of general disease. As five of these were slight cases, my figures are about the same for marked examples of the disease as Neumann's; many of the very slight cases were not recorded. At U. C. H. alone my figures are 1·4 per 1,000.

Symptoms.—The papules in this disease are from a pin's point to a pin's head in size, slightly conical, of a bright red at the very first, fading later into a pale red, or fawn colour, or even the colour of the normal skin, and tending to be arranged in roundish groups, circles, or segments of circles, *i.e.*, the normal arrangement of the hair follicles; other papules may, however, appear in the intervals of the groups in some parts, filling them up, and so producing large surfaces covered with the eruption, and looking very like an exaggerated cutis anserina. A minute scale is formed upon each of the older papules, which, after remaining for a variable period of weeks or months, undergo retrogression, desquamate, and leave behind them small yellowish pigmented spots.

The eruption is usually limited to the trunk, itching is absent or very slight, and some evidence of scrofula is nearly always present.

With regard to position, it is usually more abundant at the

sides of the trunk and over the lower ribs and flanks, than upon the front and back; the neck is often affected, the limbs rarely beyond the groins and axillæ, but when they are, the arms are more frequently involved than the legs. In one of Neumann's cases, æt. four and a half years, the whole surface was affected, except the legs.

Course.—Fresh papules frequently form elsewhere, and thus by successive crops keep up the disease for years, or the disease disappears for a time and then recurs.

Variations.—In addition to the above-described papules, others of a larger size may be seen here and there with a yellow sebaceous plug in the centre, which may go on to form acne pimples or pustules. These pustules may also arise even where there are no other papules, as on the limbs or face. An extreme development without any lichen scrofulosorum is described under Acne. In severe cases, fine branny, glistening scales are formed between the papules, giving the skin a very cachectic appearance. These lesions are really only a special feature of the disease, but other concomitant skin affections may occur, such as seborrhœa of the scalp (Neumann), purpuric extravasations into the hair follicles, especially on the dorsum of the feet, which is the so-called "**lichen lividus**," and, more commonly than this, a pustular eruption about the genitals of an eczematous nature, beginning as inflammatory nodules.

Undue prominence of the hair follicles was noticed by Dr. Tilbury Fox to be generally present.

According to German authorities, 90 per cent. have some evidence of scrofula in the shape of enlarged lymphatic glands, especially the cervical, submaxillary, axillary, and tonsils; caries or other bone-lesions and ulceration of the skin are also common. Phthisis is unusual, but may be present, and frequently figures in the family history,* and several of my cases had pleuritic effusion; on the other hand, I have met with one case where the child was well nourished and apparently in perfect health, with a good family history; nevertheless, cod-liver oil cured her.

* Out of twenty-one cases twelve had phthisis in their family, and it may have been present in some of the others, as the family history was often imperfect. The twenty-one cases were from fifteen of my own and six of Dr. Tilbury Fox, published in vol. xii. of the *Clin. Soc. Transactions*, in which there is a very good plate of the disease.

Children.—The limbs are more frequently affected in children than in adults, and the eruption may occur there without involving the trunk, a peculiarity never seen in adults, and, as far as my experience goes, the younger the child the less the liability to acne pustules. Phthisis also is a more common accompaniment in children than in adults.

Etiology.—The scrofulous predisposition seems to be the main, if not the sole, cause.

Age.—The disease is commonest in childhood; Neumann's, Kaposi's, and nineteen of the twenty-one English cases agree in this; yet Hebra's original description was taken from over fifty consecutive cases which were all between fifteen and twenty-five years, probably from there being only a small proportion of children in his clinic; but the vast majority of cases occur between two and twenty years.

The youngest case I know of was one of my own, æt. eleven months; the oldest a case of Dr. Tilbury Fox,* æt. thirty years.

Sex.—It is much more common in males, at least in Germany, for all Hebra's cases were males. On the other hand, thirteen out of the twenty-one English cases were females.

Anatomy.—Kaposi's investigations show "that the lichen papule is formed by a cell infiltration of the papillæ around the follicle, and the central scale, by a collection of epidermis at its dilated orifice." These exudation cells are first seen round the vessels and in the meshes of the areolar tissue at the fundus of the follicle and sebaceous glands, and later, within those structures, afterwards accumulating to such an extent in their interior that the sebaceous gland-cells are thrust towards the aperture, and the root-sheath separated by the follicular wall, which becomes quite distended by the accumulated cell-mass.

Darier found also peri-follicular changes, which appeared to him to be of a tubercular character; giant cells surrounded by numerous nuclei were conspicuous. Jacobi found bacilli, and therefore puts it down as a tuberculosis cutis, but it could scarcely be more than indirectly tubercular.

Diagnosis.—The small size and pale red colour of the papules, their arrangement in groups and circles, their limitation to the trunk, and the youth of the patient, together with the absence of itching,† are the most distinguishing features. The diseases

* Quoted and figured in his *Atlas*, plate xiv., but the diagnosis was not conclusive, or else the plate is misleading.

† Though usual, it is not invariable, and I have known it very marked in the early stage.

most resembling it are papular eczema, follicular syphilides, L. pilaris, and occasionally psoriasis punctata. It has no relation whatever to L. circinatus.

Papular eczema is not so likely to be limited to the trunk, the papules are a brighter red, some of them are very likely to go on to vesiculation at their summits, and itching is almost always a prominent symptom.

The more common of the *follicular syphilides* has, in comparison with L. scrofulosus, much larger papules, of a deeper, duller red, the limbs are more often affected, and there is sure to be confirmatory evidence of syphilis, as it occurs rather early in the secondary period. The other is very rare, and, as far as the papules and groups are concerned, identical in appearance with L. scrofulosus,* but the limbs and even scalp may be affected, and though I have seen it in a girl of eleven years, generally the age of the patient will suggest further investigation, when other evidence of syphilis will be almost surely forthcoming.

Where the scaliness, (so often present in a moderate degree) is unusually abundant, and masks to some extent the typical character of the eruption, L. scrofulosus may be mistaken for *psoriasis punctata.* Its limitation to the trunk, the absence of itching, together with the fact that each papule does not enlarge, and that, as confusion will only occur in severe cases, there are sure to be sebaceous plugs in some of the papules, if not actual acne pustules, which will distinguish the lichen, while other evidence of scrofula is sure to be strong in such cases.

The true inflammatory *lichen pilaris* is distinguished by the groups being few in number. The papules are larger and generally limited to the limbs, and contain spiny plugs of epidermis.

Prognosis.—The disease is always curable; and even untreated cases, though perhaps lasting intermittently or persistently for years, do not produce much inconvenience.

Treatment.—This is simple and effectual. Cod-liver oil, internally and externally, always removes the eruption. It should be given in moderate doses at first, increased up to as much as the patient can assimilate; *i.e.*, rarely more than half an ounce a day for a

* In two well-marked cases, both women over forty, the resemblance was so exact that it was only these points that gave me a clue to their real nature and led to the discovery of conclusive evidence of syphilis.

child of five, and an ounce and a half a day for an adult. Externally it must be not only rubbed in, but the skin kept constantly soaked with it. This is Hebra's treatment, and answers well, but is, necessarily, extremely disagreeable for all parties concerned. I have, therefore, tried other emollients, and have found that the inunction of vaseline, either plain, or better with liq. plumb. subacetatis ℥xv, thymol gr. 5, or ol. cadini ℥v, to the ounce, is quite as effectual and much more pleasant, while smaller doses of oil are usually sufficient, and less likely to upset the patient.

LICHEN PILARIS.

Synonym.—Lichen spinulosus (Devergie).

Definition.—An inflammatory disease of the hair follicles, in which a spiny epidermic peg occupies the centre of the papule.

The term L. pilaris was formerly used for the affection described elsewhere as keratosis pilaris; it is here employed, in conformity with the other lichens, for an inflammatory eruption. It is rather a rare disease, and is not described by most authors. Several cases, mostly in children, have come under my observation.

It may develop acutely or subacutely in crops, and consists of papules about the size of a pin's head, red, conical, and containing in its centre a horny spine, seen, when viewed obliquely, to project about one-sixteenth of an inch, and when the hand is passed over the affected region it imparts to it the sensation of a nutmeg-grater; this epidermic plug can be picked out, leaving a depression in the papule. When the papule has been present some time the redness subsides, and the papule is the colour of the normal skin. There is little or no itching, and the eruption gives but trifling inconvenience, except from the discomfort produced by the horny spines catching in the clothing.

The papules are densely crowded into patches, often very large and irregular in outline, symmetrically distributed, sometimes in a few, sometimes in many regions of the body. The positions most common are the back of the neck, the buttocks, the trochanteric regions, the abdomen, the back of the thighs, the popliteal spaces, and the extensor aspect of the arms. There are few parts of the body exempt, but I have never seen it on the face, upper part of the

chest, the hands, or the feet. Where the eruption is not so dense, there is a tendency to form roundish groups, and there are always some disseminate papules besides those in the main patches. The eruption comes out in crops, a patch appearing perhaps in the night, and continuing to increase for a week by the development of fresh papules. After this, except that the papules grow paler, there may be no change for an indefinite time. As a rule, this eruption is the only one out, but I have seen it in association with L. scrofulosus, and also with L. planus.

Etiology.—The cases are too few in number, and the literature is too scanty, to afford much material for ascertaining its causation. In my experience, it has occurred chiefly in children, and more often in boys than girls. The most extensively affected case was a boy of fifteen, whose father suffered from psoriasis ; I have also seen it in a woman over thirty. Several of the patients have been pale and delicate-looking, but there has been no very definite ill-health.

Pathology.—There is evidently, first congestion of the vessels, followed by slight effusion round the follicle, and hyperplasia of the epidermic cells lining it.

Diagnosis.—This presents no difficulty. Keratosis pilaris is the most like it, especially when the redness of the lichen has subsided ; but though keratosis has an epidermic plug, it is not spiny like that of L. pilaris, develops very slowly, and there is no inflammatory redness at any period ; it is also a diffuse, not a patchy eruption, and when the epidermic plug is picked out, the whole lesion is removed.

Pityriasis rubra pilaris also has some points of resemblance, but it is a diffuse general eruption ; attacks the hands, which escape in L. pilaris, and the epidermic plug is scaly, not spiny.

Prognosis.—It is always amenable to treatment, but will, if left to itself, last for an indefinite time.

Treatment.—Alkaline baths and friction with the hand while in the bath, are useful preliminary measures, and then a liniment of soft soap and spirit of wine with a drachm of oil of cade to the ounce, rubbed in with a piece of moistened flannel has been perfectly successful in my hands. Internally, cod-liver oil, iron, and general invigorating measures are indicated in most cases. If the redness is marked, the inunction of oil after the baths, instead of the soap liniment, would be advisable at first.

Besides the above affection there is a disease of the hair follicles, of which I have seen a few examples, truly inflammatory in my opinion, which may be thought to be as fairly entitled to the designation as the first one, but it is an uncommon and not very important affection.

Symptoms.—Firm, pale red papules, with a small collection of

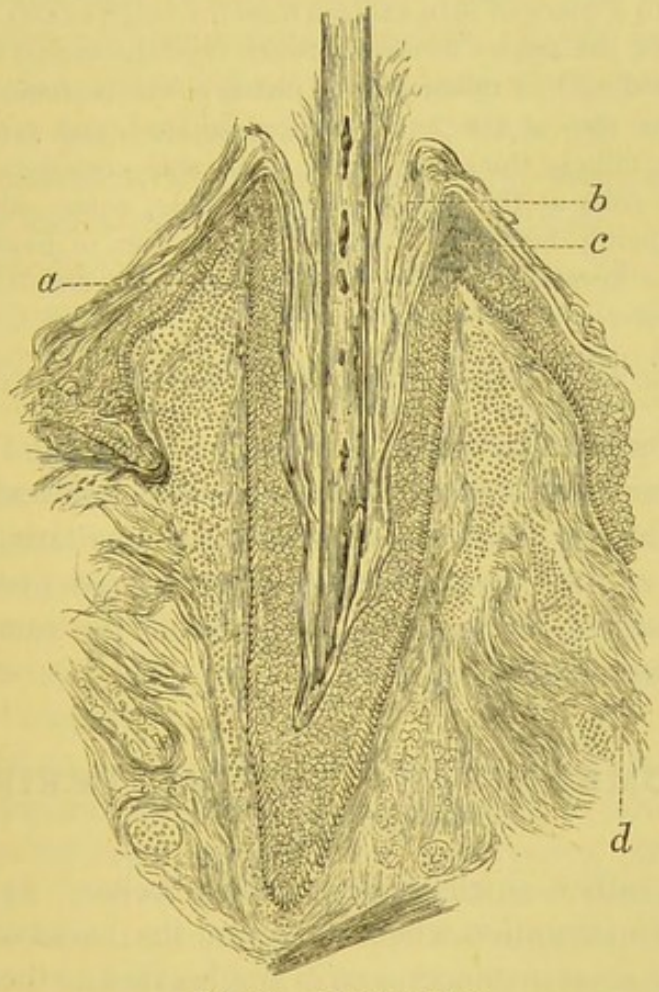

Fig. 20.—Lichen pilaris.

b, orifice of the hair follicle filled up with horny cells; *c*, cells of the rete, elongated by the pressure upwards of the inflammatory effusion of leucocytes and serum as shown at *a*; *d*, artery with the end lost in a mass of leucocytes.

minute scales in the middle, the centre of each papule being pierced by a hair, are arranged in irregularly circumscribed patches upon the extensor surfaces of the limbs, or occasionally on the flanks. The patches are few in number, and feel rough to the touch, but not so much so, as in the preceding affection. They may remain for many months, or even years, untreated. There is moderate itching and no special defect of health. I have seen it only in young adults.

In a case which was under treatment for psoriasis, irregularly circumscribed patches of papules, like those just described, appeared symmetrically on the backs of the hands and front of the thighs where there had been no previous psoriasis. This is a very rare occurrence, and suggests the possibility that the apparently primary affection is really a psoriasis pilaris.

Anatomy.—In a piece of skin excised from the thigh of this case, I found cell effusion into the angles formed between the follicle and rete, greatest above, but extending in a minor degree nearly to the bottom of the follicle. The cells of the rete at the angle were elongated, and the whole layer adjacent to the follicle thickened, while there was considerable accumulation of horny cells at the mouth of the follicle, some adherent to the hair shaft, producing the funnel-shaped condition seen in keratosis pilaris; in short, it is a keratosis pilaris plus inflammatory effusion round the follicle (fig. 20).

Treatment is the same as that for the first-described L. pilaris.

Under the head of L. pilaris some authorities, like Tilbury Fox, include inflammatory conditions of the hair follicles, secondary to chronic scabies or other diseases, producing irritation where the firm papules, with no central scales, are scattered over the trunk and limbs, but no designation is required for such a purely symptomatic condition.

CONGLOMERATIVE PUSTULAR PERIFOLLICULITIS.

Under this rather unwieldy designation, Leloir* has described eight cases of an eruption which occurs on the backs of the hands and buttocks in most instances, and in single cases on the feet, thighs, and other parts of the limbs, in one or at most two or three oval or roundish patches,† from half an inch to two inches in diameter, and raised from about a line to a quarter of an inch. The surface is smooth or slightly mammillated and cribriform, the orifices being filled at first with pus, but the hairs, if any, have generally fallen out. There are also numerous unruptured superficial pustules. The orifices enlarge to the size of a pin's head, and pus exudes on pressure. In a still further stage a "phlegmonous" condition supervenes, the whole fluctuates to some extent, and often sanious

* *Ann. de Derm. et de Syph.*, vol. v. (1884), p. 437, with plates.

† In one instance there were twelve patches in various parts.

pus can be pressed out. The whole lesion closely resembles, in appearance, kerion of the scalp. There is some itching and heat, but no pain or enlargement of the neighbouring glands. The affection appears to be a local one, develops in the course of a week, remains stationary for about a fortnight, and will then, under suitable treatment, subside in another week or two, without leaving any appreciable scar or other defect. Cases that last longer than this may develop a papillomatous surface. Leloir found micrococci in twos, chains, and zoogloeæ, in the pus of the patch and in the blood of the general circulation. Cultivations inoculated into animals produced local and general results, more or less serious, but not any lesion identical with the original one.

With regard to etiology nothing was made out. The patients were of both sexes and in good health, and although five of them had to do with horses, the animals were apparently healthy.

Leloir does not think the disease is a dermatomycosis, which it certainly suggests. I have had one case, and a few have been shown at the Dermatological Society, which resembled these. The treatment found successful was to press out the pus once a day, and soak the patch in warm water for about half an hour. However carbuncular-looking they appear, like kerion, they never require incision. My own case got speedily well with a 2 per cent. iodoform ointment.

According to Quinquaud and Pallier,* there is a variety, or rather a complication, of the above affection, in which a phlegmonous or carbuncular inflammation supervenes, and delays the usual benign course which it takes under suitable treatment. They go further, and consider anatomical tubercle, the tuberculosis verrucosa cutis of Riehl and Paltauf, and lupus verrucosus as all different expressions of one pathogenic agent, the tubercle bacillus, plus, in Leloir's disease, the staphylococcus pyogenes albus, and would divide them into two groups: (*a*) an acute, benign form, which includes Leloir's affection with its anthracoid complication; (*b*) a subacute, chronic, rebellious form, which includes the three warty forms above mentioned.

The subject requires further investigation.

* Pallier, "Des périfolliculites suppurées agminées enplaques," *Thèse de Paris*, 1888,—the result of observations made under Quinquaud's supervision, and in his laboratory. See also Kaposi, Besnier-Doyon, ed. 1891, vol. i., p. 795, for numerous references.

DERMATITIS.

There remain to be considered certain inflammations of the skin which have no special name, their peculiarities arising, not from the form and arrangement of the elementary lesions, but from their cause. Some of these causes exert their effect directly, *i.e.*, from external application, others indirectly, *i.e.*, when taken internally; and while they are classed, for the sake of convenience, under the name of dermatitis, and some qualifying term is added pointing to their origin, they have often but little in common, except their general title. The predominant lesion in the greater number of them is some form of erythema, but all of the elementary lesions may be excited, according to the susceptibility of the individual to the particular influence, its intensity, and the length of time it is in operation. The signs of inflammation—heat, redness, and swelling—are in proportion to the severity of the lesion. The several groups will be considered under the heads of D. traumatica, D. calorica, D. venenata, D. medicamentosa, D. vaccinata, D. gangrænosa.

D. Traumatica. Under this head, are included all kinds of inflammation set up by mechanical causes, such as contusions, abrasions, or excoriations, whether due to blows, pressure, friction (*e.g.*, from riding, rowing, clothing faulty in construction or material), or scratching to relieve the irritation set up by animal parasites, scabies, pediculosis, etc. The excoriations from scratching are often the most important to the dermatologist, and have already been described when considering the pruritic or "scratched skin." The other lesions are so well known, even to the laity, as not to need detailed description.

D. Calorica. Extremes of heat and cold are almost equally capable of producing more or less severe inflammation of the skin, according to their intensity and length of time of the application. Erythema solare, or sunburn, is a familiar example of what may be produced by natural heat, and while it may be erythematous, vesicular, or bullous, it never goes on to complete destruction, as it may do from artificial or ordinary burns or scalds. Cold may also produce death of the part from prolonged anæmia, or from too sudden reaction and consequent destructive inflammation.

D. Venenata. This includes the various inflammations set up by numerous external irritations of animal or vegetable origin. The effects produced on the skin are erythema, wheals, papules, vesicles, pustules, bullæ, or gangrene, according to the susceptibility of the individual, the virulence or concentration of the poison, and the length of exposure to its influence. Eczematous subjects are especially sensitive to such irritating influences, and in such persons, eruptions are not only more easily started and more severe, but often persist long after the removal of the cause.

The commonest causes are the well-known irritants—mustard, turpentine, cantharides, tartar emetic ointment, croton oil, mezereon, savin, arnica, anilin dyes, mercury, chrysarobin, bichromate of potash, several species of rhus, and others too numerous to mention.

Anilin dyes, especially the red ones, are frequent causes of eruptions nowadays, chiefly through clothing, such as gloves, socks, flannel shirts, drawers, etc., dyed with these substances. They are apt to excite an itching, red, papular eruption, in extreme cases, going on to vesicles, pustules, etc. Though limited at first, to the parts in contact with the dye, the eruption often spreads to a considerable distance beyond the part first affected, and while the primary attack may only last a week or two, by recurrences the process may go on for months. H. Lee records several such instances, and most dermatologists can recall cases from their own experience. Accidental contamination of the dye with arsenic is supposed to be the real cause of these eruptions.

Arnica rashes were very common at one time, when the drug was a household remedy for bruises and other slight injuries; but its irritating properties are becoming more generally known, and it is deservedly falling into disuse. The commonest form is that of acuminate papules, like the milder form of rhus eruption to be presently alluded to. I have known it produce an acute vesicular eczema, and in one instance a pityriasis rubra universalis.

Bichromate of potash.—Workmen who use this drug in their trade, such as French-polishers, autotype photographers, or those concerned in its manufacture, are liable to various eruptions.

In a case of my own, a French-polisher, æt. forty-four, who had had several attacks, the eruption was limited to the palms,

the whole surface of which was thickly covered with pustules an eighth to a quarter of an inch in diameter, with a red areola. Other workmen suffered similarly, but not so severely.

B. W. Richardson has given a good account of bichromate of potash poisoning. During its manufacture, the air being impregnated with the salt, the slightest abrasion gives it entrance, and an intense destructive inflammation is set up, with suppuration and ulceration, sometimes down to the bone. The glans penis and the septum nasi are liable to be destroyed; and in horses, not only the hair, but even the hoofs fall off. Richardson met with six cases among autotypers. In one, the rash was "like pityriasis rubra," in another there was "acute eczema of the arms and a scaly eruption on the palm like psoriasis, and the other cases were either like psoriasis, eczema, or pityriasis."

Chrysarobin Rash is described among drug eruptions.

Croton oil and tartar emetic were formerly used as counter-irritants, and produced a pustular eruption, often so severe as to lead to considerable scarring.

Cantharides, mustard, and turpentine.—The effects produced by these drugs are so well known as not to need special description, and mezereon and savin are rarely used.

Mercury only excites irritation in very delicate skins, or when used too long or too vigorously in one place; its injurious effects may be avoided by frequent ablutions with soap and water, and changing the site of its application frequently.

From its over-use, however, a violent dermatitis may be excited. My late colleague, Berkeley Hill, asked me to see a case in his wards, of a patient who had rubbed in the ung. hydrarg. in a wholesale manner, and had set up a severe pityriasis rubra universalis. In former days this was less rare. Moriarty * published in his brochure several cases, two fatal in Dr. Gregory's practice; but in those days, mercury was generally overdone.

In America, especially in the Far West, the *Rhus Venenata* and *Toxicodendron*, popularly called the poison ivy or oak, or poisonous sumach or dogwood, are a perfect scourge to travellers, the irritant, according to Maisch of Philadelphia, being a very volatile acid called toxicodendric acid. The variation in suscep-

* *A Description of the Mercurial Lepra*, Dublin, 1804. Also Alley, *Peculiar Eruptive Disease arising from the Exhibition of Mercury*, Dublin, 1804.

tibility to it is very great, some being able to handle it with impunity, while others cannot be in the neighbourhood of the plant, without suffering severely.

The following is from Duhring's description, for in Europe we have but little experience of it:—

The hands are usually first attacked, and convey the irritation to other parts of the body; hence the face and genitalia are favourite sites, but it may be nearly all over the body; it takes from a few hours to days to develop, and the rash may be erythematous, vesicular, bullous, or pustular, or a combination of these lesions. There are great heat, itching, and swelling, the process lasting from one to six weeks, according to the severity of the attack and the judicious character of the treatment. This should consist of mildly astringent lotions, such as Goulard water, bland ointments, and dusting powders; but better than all, according to Duhring, is the fluid extract of grindelia robusta (℥j to ℥iv or ℥vj of water). White recommends black wash, to be applied for a quarter of an hour every four hours. Brown advocates bromine in ♏v to ℥j of olive oil or simple ointment. Tannin or sulphate of zinc lotions, and vapour baths are also suggested. The same class of remedies may be used for arnica, anilin, or similar eruptions, calamine lotion being another good remedy when applied three or four times a day, and allowed to dry on. The pustular eruptions are best treated with ointments (iodoform or iodol gr. 3 to 5 to the ounce of simple ointment), or oleate of zinc or lead, spread upon strips of linen, and applied closely and continuously, with rest to the affected parts, especially if they are the hands or feet. These plans generally effect a speedy cure. A monograph on these and other external irritants by Dr. C. White of Boston (1887) gives the most complete account of this class of eruptions.

*Primula Obconica.**—Since this plant has become a common one in conservatories, several cases of dermatitis from handling it have been published in the journals. A severely itching, papular, erythematous, and vesicular eruption of an eczematous type, is excited in certain people only, and urticaria in a few others. The poison is supposed to reside in the hairs of the plant. The leaves of the Virginian creeper† have produced a similar irritation. The treatment would be the same as for rhus poisoning. Some

* *Brit Med. Jour.*, September 28th, 1889, and vol. ii., 1890, *Lancet*, ditto.
† *Lancet*, January 3rd and 17th, 1891.

caterpillars also, such as the "woolly bear," excite similar forms of dermatitis when brought into contact with the skin.

The strong acids or alkalies or other caustics produce, as is well known, all degrees of inflammation up to complete destruction of tissue.

Feigned Eruptions.* Besides their legitimate use, various irritants may be fraudulently employed, chiefly by hysterical women, mendicants, soldiers, prisoners, or domestic servants, either with a sordid or morbid object of obtaining sympathy, or to avoid some irksome duties. Unless the physician has a sound knowledge of the effects of true disease, they may give a good deal of trouble, and the impostors are often successful in their object when there is an apparent absence of adequate motive. The following points will often aid in detection; but let not the young physician expect credit for so doing, as the friends of the hysterical one are often almost as angry with the discoverer, as they are with the perpetrator of the deceit:—

The eruption or lesion nearly always differs from what may be called the natural eruption it is supposed to represent, and is often unlike any known disease. Thus, if it is an erythema, it is probably sharply defined and irregular in shape, and with a clumsy operator may even be angular in outline. If it is gangrenous and produced by a liquid caustic, in addition to the irregularity it is common to find that some drops have been spilled away from the main lesion, or that it has run down in a streak, or that it has damaged the clothing or stained the fingers or nails. Then the lesions are either single or few in number, at least, at each supposed outbreak, though when the deception has lasted a long time, the number of lesions in the aggregate may be very large. They are usually arranged unsymmetrically, mainly on the left side, especially on the limbs, or at all events in easily accessible positions. The fraud may be betrayed by traces of the special agent employed on the skin or clothing, such as particles of mustard or cantharides, the smell of turpentine, the yellow stain of nitric acid, etc. Spontaneous superficial gangrene, especially in a young woman, should always be regarded with suspicion.

* A good many examples are to be found in vol. i. (1870) of the *Brit. Med. Jour.*, by the late Mr. Startin, Hilton Fagge, W. Roberts, etc. See also a clinical lecture by Colcott Fox, *Illustrated Med. News*, November 2nd, 1889.

A few examples may be given. A girl of seven was brought to U.C.H. for longitudinal scabbed patches on the back of the phalanges, for which she had been sent to the seaside on several occasions; she confessed that she liked going very much, and stopping her jaunts stopped the lesions, which were probably burns with a match. A girl of eighteen simulated chromidrosis. While she was having a bath, black-lead was found in her pockets. In another case, a servant with a gangrenous patch on the leg, a yellow streak ran round to the calf away from the main patch. The diseases most frequently simulated are erythema, eczema, pemphigus, ulcerations, morbid growths or discolorations, changes in the cutaneous secretions, etc.

C. Fox and Sangster* have each reported a case produced by mechanical means; the patient rubbed a spot with the end of her fingers, moistened with saliva, until a sore was the result. Cases such as these have been reported by Erasmus Wilson and others as "neurotic excoriations," and correctly so, but not in the sense intended by the authors. Sangster† showed such a case at the Congress in 1881, which at the time he thought genuine, but subsequently ascertained to be produced in the same way as his other case already mentioned. Bristowe‡ also, records a case where pieces were snipped out with scissors.

DERMATITIS MEDICAMENTOSA.§

Synonym.—Drug eruptions.

It is fortunately uncommon for eruptions to be produced by drugs, yet the number that may produce them is considerable.

* *Lancet*, December 30th, 1882.

† *Lancet*, June 3rd, 1882.

‡ *Lancet*, January 1883.

§ *Literature.*—G. Behrend, "Zur allg. Diagnostik der Arzneiausschläge," *Berlin klin. Wochensch*, vol. xvi. (1879), p. 714. Berenguier, "Des éruptions provoquées par l'ingestion des médicaments," *Thèse de Paris*, 1874, p. 45. Morrow on "Drug Exanthemata," etc., *New York Med. Jour.*, vol. xxxi. (1880), p. 244; and a monograph published by Wood & Co., New York, 1887, with bibliography, of which a new edition is being prepared for the Syd. Soc. Van Harlingen, "Medicinal Eruptions," *Amer. Arch. of Derm.*, vol. vi., p. 337—very complete, and full of references. Discussion on Drug Eruptions, *Trans. of Internat. Med. Cong. Berlin*, 1890. Also Brooke and C. Fox's papers in *Brit. Jour. Derm.*, October and November 1890.

In the majority of instances, there is either an idiosyncrasy on the part of the patient, or renal or cardiac disease interferes with elimination, or the dose is large, the medicine long continued, or a combination of these factors is present. Thus, there are many instances where a very small dose has been, and always is, capable of producing an eruption in that particular patient; and in these, a larger dose, or perseverance in taking the drug after the appearance of the eruption, may considerably aggravate the form it takes, a partial erythema becoming general, or a vesicular eruption becoming pustular or bullous. Whilst there are many forms of eruption due to drugs, only two—iodine and bromine, and their salts—are capable of exciting lesions which are special and peculiar. In all the rest, the eruption itself follows a recognised type, and it is only from the circumstances under which it occurs, that the cause is ascertainable.

Antifebrin or **Acetanilide** produces a kind of cyanosis when the drug is long continued or the dose is large. The slaty-coloured anæmia is very suggestive, and is probably due to a change different to that of venous blood, in a case of poisoning the blood being dark blue, as in aniline poisoning. Small doses will sometimes produce it. Monobromacetanilide has a similar effect.

Antipyrin. Since this drug has been used as an antipyretic, several cases of eruption have been reported. Blomfield, Dale, Paul Ernst * of Zürich, Cahn, etc., record cases of erythema.

This form may be general or partial, but symmetrical, affects the extensor aspects more than the flexor, and the limbs more than the trunk, but every part, even the palms and soles (Ernst), has been involved in one case or other. In one of Blomfield's cases it began inside the knee, and spread from that all over the trunk; the eruption was of a deep red, papular or morbilliform, becoming confluent, but with free intervals of white healthy skin which gave it a marbled appearance, or it enlarged into patches half an inch in diameter; these began to clear in the centre, and faded altogether in from five days to a week. There was itching in most cases, moderate desquamation, and some staining left. Acuminate miliaria-like papules, with profuse perspiration, have been noted. Spitz collected fifty-two cases, and of these forty-one were mor-

* *Centralblatt f. klin. Med.* of August 16th, 1884. *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 192.

billiform, four urticarial, and the others papular erythema; and Strauss records a case of purpura limited to the back and lower limbs, but very large doses, producing collapse, had been administered; while in most of the other cases, moderate doses, such as twelve grains, had been given. The rash faded in several instances without the drug being stopped. Veiel * records a case of bullous eruption in a man of thirty-three which appeared on the glans penis, between the toes, on the lips and hard palate, while it was red and wheal-like on the palms and soles. Petrini's † case was still more developed, some of the bullæ being the size of a five-franc piece, and the eruption was nearly universally distributed. The dose was probably very large.

Arsenic. This, being a powerful irritant, is liable to produce inflammatory eruptions when in direct contact with the skin, but as it is only like other irritants in this respect, these eruptions need not be gone into. Eruptions of various kinds may, however, arise from its internal administration. Imbert-Gourbeyre ‡ has written a very good monograph on this subject. Urticaria is one of the most common forms of eruption, according to this author; four minims three times a day for three days produced it in one case; on the other hand, the only instance of a diffuse erythematous lesion is the inconclusive one of Fagge, in which a scarlatiniform and vesicular eruption followed on the combined administration of arsenic and quinine.

Imbert-Gourbeyre states that the following eruptions may occur: erysipelas-like dermatitis of the face and eyelids, often becoming vesicular; a papular rash on the face, neck, and hands, morbilliform or like a papular syphilide. The papules are few, small, and separate at first, but subsequently in groups; these enlarge and coalesce into patches, which may be large and disseminated on the neck. Pin's-head-sized papules on the forearms, with itching, are described by the same writer, and urticaria is quite common.§

Herpes zoster has followed the administration of arsenic in so many instances, as first pointed out by Hutchinson, that some

* *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 33.

† *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 170.

‡ Imbert-Gourbeyre, "Histoire des éruptions arsénicales," *Moniteur des Hôp.*, 1867, p. 3,017, quoted by Van Harlingen; also *De l'action de l'arsenic sur la peau*, Paris, 1871.

§ *Brit. Med. Jour.*, March 11th, 1876 (Correspondence).

relationship has been established. Duckworth, Finlayson, etc., have reported cases, and several have fallen under my own notice. Pustular, ulcerative, or gangrenous eruptions have, as a rule, only followed large and toxic doses, but Bazin, after giving one-thirtieth of a grain once a day for two weeks in a case of eczema, observed an eruption limited to the right flank, consisting of discrete papules and pustules, an ulcer one centimetre broad and two ecthymatous lesions, but this may have been a severe zoster only. Malcolm Morris speaks of boils and carbuncles being sometimes caused by arsenic. Pigmentation following arsenic is now well known.* At the commencement, as can be well seen on the abdomen, the hair follicles themselves escape, so that there are white dots on a dark ground, which is very characteristic, but ultimately the discoloration is uniform. The colour is sepia or yellowish-brown. In children, it may occur even with moderate doses, but in adults, it is only after large doses or long-continued use. The face, neck, axillæ, and abdomen are the parts first involved. Gubler thinks it is true pigmentation, and not due to mere deposition of the metal in the tissues. Against this may be cited the fact that when psoriasis is cured by arsenic, marked pigmentation often ensues, strictly limited to the sites of previous eruptions. Thickening of the horny layers of the palms and soles is another consequence of long-continued administration of the drug; this begins round the sweat follicles, so that the surface is covered with small nodular thickenings. Gradually the intervals are filled up, and uniform thickening of the horny layer or keratosis is established just like the congenital form. An analogous thickening occurs over the knuckles and elbows, a whitish powdery appearance being produced, with slight resemblance to psoriasis. Arsenic is very liable to aggravate acute forms of skin inflammation.

Belladonna. A diffuse erythematous blush and a scarlatiniform eruption have been described as due to belladonna, occurring chiefly in children, even when small doses have been taken. I have seen large red patches paling on pressure and the whole face and trunk suffused deep red in cases of belladonna-poisoning, but have rarely met with it after medicinal doses, although I have prescribed it in twenty or thirty-minim doses of the tincture, in hundreds of cases of whooping cough. In a case at St. George's

* A case of this and of tylosis will be illustrated in my *Atlas*.

Hospital, kindly shown me by Dr. Whipham, a man of forty with supposed typhlitis wore a belladonna plaster for a week, and then took two seven-drop doses of the tincture; the next day the hands and feet were swollen, red, and tense. When I saw him, the palms were deep red with thickening of the epidermis, the soles were less affected, over the knuckles and all points of pressure the redness was intense, and capillary pulsation could be demonstrated by slightly flexing the joint. Dreyfous records a scarlatiniform eruption and papular erythema, with intense itching, after taking two grains of the extract in the course of five days, followed by a vapour bath.

The application of the emplastrum belladonnæ (B.P.) is very often followed by an itching erythematous rash, and the extract has produced similar irritation.

Boric Acid. Molodenkow,* of Moscow, washed out a pleural and a lumbar abscess cavity with a 5 per cent. solution for an hour, a large quantity of the drug being employed, and "the next evening, erythema appeared on the face, and spread on the third day to the neck, chest, and abdomen, then to the thighs, small vesicles appeared on the face and throat, the sight became dim, and both patients died, conscious to the last, one on the fourth, the other on the third day." Bruzelius† reports a similar case, but with recovery, after rectal injections of two pints of a 4 per cent. solution. Another case is reported by Johnson of Norway. Vincent reports two cases, both in subjects with renal disease, Corlett saw six cases when treating diphtheria with ʒj doses of the drug, and G. Lemoine met with a case from dressing a bed-sore with the powdered boracic acid with febrile symptoms.

Borax, given internally, in five-grain doses, for epilepsy appeared to produce psoriasis of the usual type in three cases under Gowers. This experience is confirmed by Liveing. Féré and Lamy record two cases of eczema with gastric disturbance excited by it, but both patients had seborrhœa of the scalp, and had had previous attacks of eczema.

A diffuse, erythematous, morbilliform eruption followed the administration of "tartarus boraxatus" in large doses for two weeks by Alexander.

* Quoted in *Lancet*, May 6th, 1882. † *Hygeia*, 1882.

Bromine and Bromides. The eruptions met with in connection with these drugs are pustular, erythematous, urticarial, bullous, and squamous.

The great majority are pustular, and these may be discrete, acneiform, and furuncular, or confluent. The discrete acneiform is very common upon the face, chest, or back, the scalp, and round the hair follicles of the thigh and leg. The pustules are yellow, on a raised red base, from a hemp seed to a pea in size. The confluent form is rather rare. Cases have been reported by Cholmeley, Lees,* myself,† and others. It is very distinct from all other eruptions except those of iodide, which are often exactly similar. Convex, crimson, much-raised, circumscribed, oval, or roundish elevations are formed on the face and limbs, rarely on the trunk. The top of these elevations is covered with minute, closely aggregated yellow pustular points, almost like a carbuncle, but there is no red border or brawny induration, and the swellings are soft, almost fluctuating, and dry into a scab in the centre, even while there are pustular points near the periphery. Ultimately a yellowish or black (from hæmorrhage), irregularly sulcated scab is formed, and when this is removed an irregular ulcer may be left, but, as a rule, if the drug is not continued the lesions dry, the swelling subsides, and the scab is thrown off, without even leaving a scar, though the skin has a purplish or brownish stain on the site of the eruption for a considerable time. There are nearly always some discrete lesions as well. One peculiarity is its tendency to commence in scar tissue ; in three instances, in my own experience, it was on the site of the vaccination scars, and in one limited to that position, the lesion, with its central scab, being very like a vaccination pustule of about the tenth day ; in the case of an adult, the eruption was limited to the scar of an old strumous ulcer of the leg, in another it was on the scar of a recent burn. Another point is, that the eruption continues to come out, and sometimes does not even commence, until after the drug has been stopped for some days. Infants are more liable to confluent eruptions than adults, and it has been thought that a combination of iodide with bromide increases the liability to them. Deficient kidney elimination is also a factor both for this and iodide eruptions, but very small

* *Path. Soc. Trans.*, vol. xxxviii. (1877), p. 247, with coloured plate.

† *Path. Soc. Trans.*, vol. xxix. (1878), p. 252, with coloured plate. Both of these give a very good representation of the eruption.

doses will produce the lesion where there is an idiosyncrasy, as little as a grain three times a day in an infant given by the mouth, and it has occurred in sucklings whose mothers were taking the drug. As a rule, however, large doses are more likely to produce it; hence it is common in France, where doses of ten grammes and upwards are not infrequently given. Papillary hypertrophy sometimes follows, as well as accompanies, the eruption, as I have myself seen; while Veiel describes large prominences on the face and legs, like ordinary warts, and not consecutive to other lesions. Two fatal cases are known, but due to the general effects of the drug, not to the skin lesions. They are reported by Hameau and Eigner, and were women, æt. twenty-two and nineteen respectively. Both had been taking enormous doses for a year previously.

A furunculoid eruption, and groups of indolent acneiform pustules on the legs, which left scars, have been described by Voisin. Both he and Van Harlingen describe ecthymatoid pustules, but these may well be accidental from pus inoculation.

Erythema nodosum, or something very like it, is described by both Voisin and Veiel, occurring on the legs. In a case of Horrocks* similar lesions came on the legs and extensor surface of the arms and forearms, and subsequently indistinct vesicles formed upon them.

In this form of eruption, as I have seen it, the lesions are more brawny and defined, and less tender than in true erythema nodosum, and not necessarily situated over the superficial bones.

Echeverria describes a case with a diffuse, papular eruption over the elbows, knees, legs, and back of hands. He says that a brownish discoloration of the forehead and neck is also to be met with, and that painful subcutaneous suppuration may occur. Duhring saw a diffuse erythema of the face and neck, accompanied by maculo-papules, flat papules, and pustules.

All the eruptions are probably only stages or modifications of the ordinary pustular eruptions. Urticaria is spoken of as of doubtful occurrence; it may occur after iodide, and probably after bromide. Saundby's case was complicated by the patient taking thirty minims of hydrobromic acid at the same time as the bromide.

Veiel and others describe a squamous eruption like seborrhœa,

* *Path. Trans.*, vol. xxxiv., p. 272, and also p. 273.

and this is probably the same as the eczema with pityriasis of Voisin. A bullous eruption is recorded by Wigglesworth * in an epileptic lady who had taken bromide for some time. Slightly acuminate bullæ came out on the trunk, from the size of a split pea to that of the finger tip; some were hæmorrhagic: they ruptured and left an excoriated surface; the rash disappeared soon after the discontinuance of the bromide.

Anatomy.—Much dispute has arisen as to whether the sebaceous glands are the seat of the lesion. The anatomy of the pustular lesions has been investigated by Neumann,† S. Mackenzie,‡ jointly by C. Fox, Gibbes, etc.§ Neumann found that the inflammation began first round the sebaceous follicles, and later the hair follicles and sweat glands were involved, while there was considerable hyperplasia of the epithelial layers. S. Mackenzie found that there was: (1) active hyperæmia of the corium, with exudation of coloured and colourless corpuscles, especially in the neighbourhood of the papillæ; (2) minute abscesses in the vicinity of the hair follicles and sebaceous glands; (3) small multilocular vesicles in the superficial layers of the epidermis. Hence he infers that the fluid part of the exudation tends to reach the surface and form bullæ more rapidly than the corpuscular part, which accumulates near the hair follicles and sebaceous glands, and forms points of suppuration. Fox and Gibbes found that the changes were chiefly perivascular, but involved the sweat gland ducts, and regarded any changes near the sebaceous glands as accidental. On the whole, it seems probable that the seat of the lesions is at the vessels, and that the glands or follicles are involved simply because they are highly vascularised, but that they are not always involved, or in any way necessary for the production of the lesions, is shown by their occurrence in, and even preference for, scar tissue.

Diagnosis.—The discrete lesions differ somewhat from ordinary acne, they suppurate more freely, and the contents are more distinctly purulent and of thinner consistency; the red base is usually of a dusky hue. These differences are just sufficient to excite inquiry as to whether bromide is being taken. The confluent form is very distinctive. The aggregation of pustular points on a raised red plateau, too soft for a carbuncle, and comparatively painless, and perhaps the position of the lesions, render the diagnosis possible from everything but the similar iodide eruption.

Treatment.– Stop the administration of the drug, give liq. arsenicalis in ℥iij to ℥v doses three times a day, and apply

* *Arch. of Derm.*, vol. v. (1879), p. 371, in discussion on iodide bullæ.
† *Viertelj. f. Derm. u. Syph.*, 1874, p. 395.
‡ *Path. Trans.*, vol. xxxv. (1884), p. 400, with lithographs.
§ *Med. Soc. Trans.*, vol. ix. (1886), p. 51.

subacetate of lead lotion 2 per cent., or salicylic acid gr. 1 to ℥j of water, on lint covered with oiled silk, as recommended by Prowse. Where, as in epilepsy, it is necessary to go on with the bromide, the addition of a drop or two of liq. arsenicalis to each dose of the mixture will materially control, if it does not entirely prevent, the eruption ; and in most cases, then, it is safe to stop the bromide for two days in each week. Féré tried to produce intestinal antisepsis by giving naphthol β and salicylate of bismuth, and the fungating eruption disappeared without the bromide being stopped. Salol gr. 5, *ter die*, would have the same effect, and would not be injurious, as arsenic is, when taken for long periods.

Cannabis Indica. Nevins Hyde* reports a case, the only one on record, in which a grain of the extract taken overnight, produced the next morning, an eruption consisting of disseminated vesicles, with clear contents, from a pin's point to a pea in size, attended with considerable itching, and subsiding without treatment in a few days.

Chlorate of Potassium. Stellwagon† reports a case in which a "fiery erythematous and papular eruption," similar to erythema multiforme, and without subjective symptoms, followed the use of tablets of chlorate of potassium on four occasions, when about one hundred grains in all had been taken. Brouardel and Lhote noted bluish spots on the skin, sometimes a general cyanosis and sometimes an icteric tint, where poisonous doses of chlorate of potassium had been given.

Chloroform. Morel-Lavallée‡ records three cases in which purpuric spots were formed under observation during the early stage of administration of chloroform by inhalation.

Chloral Hydrate. Various eruptions, mostly of erythematous type, have resulted from the use of chloral. The most common is the kind, of which Gee reports two cases: a dusky red papular eruption, surrounded by a more diffuse redness of the face, neck, and extremities, especially near the articulations, which were all

* *New York Med. Record*, May 11th, 1878.
† *Amer. Med. Record*, July 21st, 1883.
‡ *Ann. de Derm. et de Syph.*, vol. v., No. 2, p. 78.

more or less affected. General scarlatiniform eruptions, followed by desquamations, are less frequent. The oral and pharyngeal mucous membrane is also red, increasing the liability of its being mistaken for scarlatina, as a rise of two or three degrees of temperature is not uncommon. The Chloral Committee of the Clinical Society* had the following skin lesions reported to them:—A defective circulation of the hands, with blueness, and, in one case, a line of ulceration round each nail; a bullous eruption called pompholyx; an erysipelatous redness of the face; intense redness and flushing of the face and scalp; a large patch of papular efflorescence of a purplish-red colour; a lichenoid eruption and ulcers; and itching of the legs without eruption. In nearly all these cases, the drug had been taken for some time, often in large doses. Stimulants are said to increase the eruption. In a case of Kirn's, the eruption began as discrete red papules, which became confluent, and as the drug was not stopped, it went on to vesicles, pustules, and scaling of an eczematous type. The same author and Crichton Browne record purpura following its prolonged use, in one case leading to death. Urticaria has also been observed. According to Barbilion, any form of alcohol given with it, especially in children, greatly increases the liability to eruptions. It has been said that neurotic subjects are more liable to it, but they are just the people who take it most.

Chloralamide. Pye-Smith† had a case of a brewer's cellarman, with aortic disease, who took two forty-grain doses every night for twelve nights. On the thirteenth day a diffuse, bright red scarlatiniform eruption appeared on the face and soon became universal, including the mucous membranes. The temperature reached 103° F., and there were other febrile symptoms, with running at the nose and eyes. The eruption lasted a week, and was followed by large flaky desquamation.

Chrysarobin. The external application of this drug is liable to produce a peculiar deep, almost coppery, red erythema, which extends a considerable distance beyond its site of application. Thus, when applied to a part of the scalp, the whole scalp, face, and neck may be affected. There is conjunctivitis, and so much

* *Clin. Soc. Trans.*, vol. xiii., p. 121.

† *Clin. Soc. Trans.*, vol. xxiii. (1890), p. 137, with coloured plate.

swelling that the eyes are closed, and it is liable to be mistaken for erysipelas.* In a few days, if the application is stopped, and often even when it is persevered with, the redness and swelling subside, and a dirty, purplish-brown desquamation ensues.

In two cases where I ordered it with lanolin, for alopecia areata, there was a copious outbreak of small vesicles also, not only on the face, but on the forearms, which presented a very eczematous appearance, but soon got well with calamine lotion. Brocq † relates that a man died in 1880 in the St. Louis Hospital with intense general erythema and severe symptoms of poisoning from its too extensive external use. In a case of Vidal's, general exfoliative dermatitis, of two months' duration, with intense fever, was brought on in the same way.

Cod-liver Oil is said by Lewin to have produced a vesicular eruption, and Farquharson speaks of its causing acne.

Copaiba produces in many people, several forms of eruption, mostly of erythematous type, coming chiefly on the hands, arms, feet, knees, and abdomen. It may follow quickly on the first dose, or only after some quantity has been taken, and may be general or partial in its distribution. It fades rapidly if the drug is stopped, desquamation following, only when the eruption is kept up by continued administration. The most common and characteristic rash consists of rose-coloured, irregular patches, grouped or discrete, and only just perceptibly raised above the surface. In a case of my own the rash was exactly like scarlatina, extending only down to the groins, while on the thumbs and forearms there were small vesicles or papules becoming vesicular. The eruption came out after taking six copaiba capsules in two days, and a fortnight later the same quantity had the same effect, but with the eruption even worse than before.

Urticaria and a miliary papular eruption have been observed, and Hardy describes a case where the first administration produced rose-coloured, elevated patches, and when again given after an interval, and taken for twelve days, a pemphigoid eruption ensued, with abundant secretion and desquamation, lasting six

* Such a case is recorded as erysipelas in *Med. Times and Gazette*, April 3rd, 1886.

† *Amer. Jour. Cut. Med.*, vol. iv. (1886), p. 24.

weeks, and resembling pemphigus foliaceus; anasarca, without albuminuria, was also present. Copaiba imparts to the skin secretions a peculiarly disagreeable odour.

Cubebs. One case is reported by Berenguier, where an electuary produced a general millet-sized, papular erythema, which coalesced into small patches in some places. It lasted two days, and was followed by desquamation.

A combination of copaiba and cubebs, in a case of Mauriac's, led to a scarlatiniform and morbilliform eruption, succeeded by a central ecchymotic patch enclosed in two concentric circles, the outer a deep red, the inner pale rose colour, the whole slightly raised. The ecchymoses were more marked on the lower limbs.

Digitalis. Traube is said by Behrend to have observed in one case a scarlatiniform and in another a papular erythema, after the ingestion of digitalis.

Iodine and Iodides. The eruptions that may be produced are pustular, vesicular or bullous, purpuric, erythematous, and urticarial. The pustular eruptions are the most characteristic, and, like the bromide which they closely resemble, are discrete or confluent. The discrete lesions are, as a rule, much smaller than those of bromide; they are often simple pustules without any raised red base, and when they have one, are more acuminate than those due to bromide. When confluent, they may be exactly like bromide lesions, or they may have clearer contents, tending more in the bullous direction than the bromide form. Confluent cases have been met with by Duhring, Da Costa, myself, and others, but they are much rarer than the corresponding bromide eruptions. There are always discrete lesions as well, in greater or lesser numbers, and the distribution, like the bromide rash, is chiefly on the face and limbs, especially round hair follicles.

A further development of these confluent eruptions is seen in the so-called anthracoid or vegetating cases, in which an apparently papillomatous condition is developed. This papillomatous appearance is rare in iodide eruptions as compared with those of bromide, in which it may be often seen. It is not a true papilloma structurally, being mainly epithelial growth upwards, and subsides spontaneously, but slowly, if the drug is discontinued.

Norman Walker* reports a highly developed case from Unna's clinique, but with a single lesion on the nose. It was scraped away after only four days' observation. Hallopeau and Feulard have each recorded a case where true papillomatous development occurred on the cicatrices of an iodide eruption.

Vesicular and bullous are much rarer than pustular eruptions. Bumstead was the first to call attention to them; Tilbury Fox† described two cases; and Nevins Hyde,‡ after recording a case, gives the bibliography up to date of this form.

It begins as papules, and in most of the cases, the vesicular or bullous part is seated on a solid base, and the bullous character is more apparent than real. In a case of Duckworth, which looked herpetic, no fluid escaped on puncture; and one of my own, which to the eye was bullous, proved to be solid on puncture, a drop of clear fluid only escaping on pressure. Duckworth also observed in one case that, as in the bromide rash, the lesion was seated on scar tissue.

In Lindsay's case, in the Belfast Hospital, after only seven and a half grains, the patient had headache, nausea, severe itching, and an outbreak of bullæ, surrounded by two concentric rings, the outer as large as a crown piece; the trunk, upper limbs, and face were thickly covered, while the lower limbs were almost free.

These cases differ from what Hutchinson§ calls **iodide hydroa**, which is a more distinctly bullous eruption. I had a somewhat similar case, in which bullæ came out thickly over the face and arms, but each had a rather broad red areola, and there was considerable swelling of the face. A very severe case, which hastened the patient's end, is recorded by Morrow;‖ and another case, fatal in eight days after thirty grains of the iodide in divided doses, is recorded by Wolf of Goritz,¶ in which there were papules, pustules, and bullæ in the face and all the visible mucous membranes. In both Wolf's and Morrow's cases, there was renal and cardiac disease.

* *Lancet*, March 12th, 1892. He gives references to most of the previous cases. His histological examination is in the *Monatsh. f. Derm.*, vol. xiv.

† *Clin. Soc. Trans.*, vol. xi., p. 40, with coloured plate.

‡ *Amer. Arch. of Derm.*, vol. v., p. 333.

§ Plate xxxiii. of *Syd. Soc. Atlas.*

‖ *Amer. Jour. Cut. and Ven. Dis.*, vol. iv. (1886), p. 97, with coloured plate.

¶ *Berlin klin. Wochensch.*, quoted in *Lancet*, October 23rd, 1886.

The photograph and history of a case were sent to me by Taylor of Liverpool, in which, in the course of three weeks, a copious crop of nodules of various sizes came out over the face and neck. The epidermis was tightly stretched over the nodules, which were hard and of the same colour as the surrounding skin. The outbreak was traced to Clarke's Blood Mixture, a quack medicine well known to contain iodide of potassium.

Diffuse erythema has occurred, but I only know of one case, a woman, æt. fifty, reported by B. A. Rugg.* After taking four grains every four hours for some days, large red papules, with a shotty feel, came on the wrists and forearms, and from this a uniform erythema, followed by free desquamation, spread all over the body.

A papular erythema after small doses is recorded by Maïeff of St. Petersburg.

Indurations, with or without reddening of the skin over them, and then very like erythema nodosum, may occur after iodides as well as bromides.

Urticaria is also exceptional. Jordan Lloyd had a case in which a dose of three or four grains produced general urticaria in three hours, which was gone by next day.

Of similar nature are the cases of œdema following iodides. It may occur in the orbit, or even in the glottis, of which Groenow † collected nine cases. Dyspnœa, requiring tracheotomy for its relief, may ensue.

Purpura has been recorded several times by Silcock, Stephen Mackenzie, C. Fox, E. Vidal, Besnier, and others. In Mackenzie's case, the child died from it after a single dose of two and a half grains. In Silcock's case, the purpura disappeared under arsenic, and returned when that was left off; the limbs were especially affected; hæmoptysis and metrorrhagia have also occurred (Kness). According to Besnier, purpura does not occur from iodine itself, only from iodide of potassium. A case of hydroa, under my colleague R. W. Parker, was aggravated into a gangrenous condition by its use; and in O'Reilly's case of bullous iodide rash, the parts on which the bullæ had been, sloughed, the entire penis being lost.

An eruption like erythema nodosum is reported by Talamon, but it was on the buttocks, front of the thighs, the calves, and on the

* *Lancet*, June 1879.

† Abs. *Brit. Med. Jour.*, May 10th, 1890.

back, and there were none of the ensuing ecchymotic discolorations characteristic of erythema nodosum. Pellizzari,* Ricord, and Fischer have also reported similar cases. Other differences are pointed out under bromide eruptions. Iodide, like bromide eruption has occurred in suckling infants, whose mothers were taking the drug.

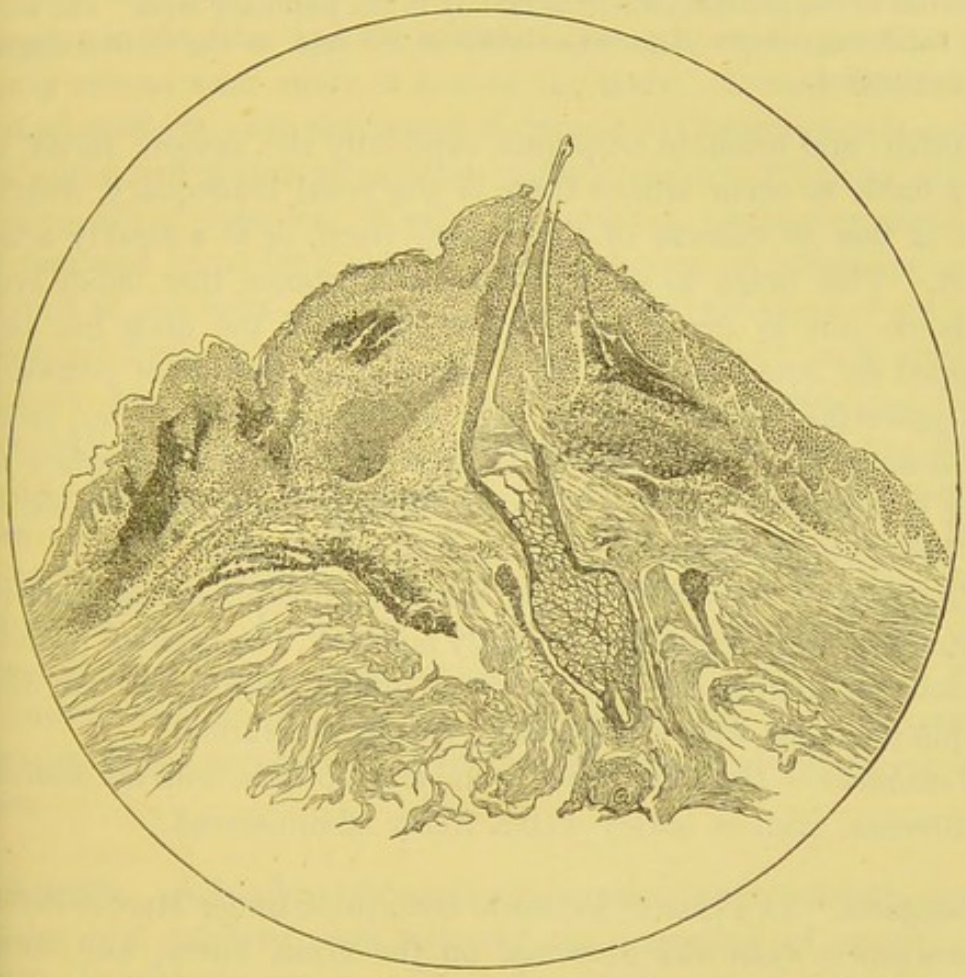

Fig. 21.—An iodide eruption which looked like a vesicle, but proved to be solid, consisting of enormous cell effusion in the papillary layer with a hair follicle in the centre.

Thin examined a bullous iodide eruption in a case under Howard Marsh. The sebaceous glands were unaffected, but the vessels were diseased and plugged with disorganised blood. The bulla, he considers, is due to an injury to the walls of a blood vessel at a limited spot, which allows of the escape of blood constituents; when the injury is slight, iodine acne is produced, when more severe, bullous and pustular eruptions, and in the worst form, hæmorrhagic extravasations.

Vincent Harris † also examined a pustular eruption in one of Duckworth's

* Abs. *Ann. de Derm. et de Syph.*, vol. vi. (1885), p. 573.

† *Path. Trans.*, vol. xxx. (1879), p. 476.

cases, and regards it as a localised superficial dermatitis, in which the hair follicles and sweat glands were unaffected; the vessels were numerous, dilated, and sheathed with exudation corpuscles; the effusion was greatest in the papillary layer, which was flattened out and excavated.

I have also examined a small lesion from an extensive bullous eruption. While Harris's observations are true in the main, the hair follicles do not always escape as the woodcut clearly demonstrates, and as may often be seen during life; at the same time, neither they nor any other structure are essential to the process, which is mainly in the papillary layer. The lesion is a solid one; there is no vesiculation in the rete, as the clinical appearances suggest.

Iodide and bromide eruptions, especially the severer forms, are very liable to occur where there is any renal inadequacy, whether that is due to disease of the kidney itself, or to a weakly acting heart. This helps to explain the circumstance that iodide eruptions do not in many cases come out until the drug has been stopped for some days, or even two weeks. Iodide of potassium is a powerful diuretic, and as long as diuresis is kept up, unless the dose is very large, there is often no eruption, but when the drug is stopped after a few days the diuresis stops, and the iodine, not being removed fast enough, excites an eruption.

Diagnosis.—This is much the same as for bromide rash, but the lesions are more frequently partially bullous. The discrete pustules are smaller than those of bromide or ordinary acne, and are often simple pustules, with a red areola, but no induration.

Treatment.—The same as for bromide eruptions, with the addition of diluents, such as barley water, freely administered.

Iodoform. In a case of iodoform absorption under Marcus Beck,* a punctiform rash was observed on the arms, knees, and dorsal surface of the feet. Janovsky of Prague, also reported a case at the Copenhagen Congress. Neisser describes six cases of eczematous eruption following its use. So many cases in one man's experience suggest impurity of the drug. That serious general symptoms of nocturnal delirium, elevation of temperature, drowsiness, and progressive emaciation, or even simulated meningitis, may follow from its absorption is well known. Death has occurred in some cases. Treves † reports a papular and erythematous eruption in a child.

Mercury. Although it was denied by Hebra, it must be admitted,

* *Brit. Med. Jour.*, June 17th, 1882.

† *Practitioner*, vol. xxxvii., No. 4, October 1886, with bibliography.

on the authority of Fournier* and Hallopeau, Engelmann, and others, to say nothing of older writers like Alley, that erythematous eruptions may arise from its internal administration, while the so-called mercurial eczema from its inunction is well known, and is of the same character as that due to any other irritant. The eruption may be partial or general, is diffuse, deep red, accompanied by swelling, and may easily be mistaken for erysipelas, especially as it begins in the face, and the surface is smooth, shining, and itchy. It may extend over more or less of the body. It may be papular or scarlatiniform, as in the case of Robinson of Constantinople : after two and a half grains of calomel, miliary vesicles followed, which developed into pustules. Guelpa met with a papular eruption on the face and limbs from using a vaginal douche of a half per cent. solution of corrosive sublimate. Hypodermic injections of calomel (Lessing), yellow oxide of mercury (Petersen),† and thymol mercury have been followed by erythematous eruptions ; but Janovsky found that injecting pure paraffin oil produced the same rash as the thymol mercury in the same patient. The evidence goes to prove that in the case of mercury, these eruptions may follow in certain people whatever may be the mode in which the drug enters the body. Universal exfoliative dermatitis from mercurial inunction has already been alluded to. Petrini met with a case of bullous eruption in a woman of twenty-two after an intra-uterine injection of the perchloride. She was intolerant of mercury in any form.

Morphia. A bright erythematous eruption, attended with severe itching and pricking, has followed the ingestion of morphia or opium, in many instances. Cases have been reported by Ringer, Farquharson, C. Fox, and others. As a rule, it is papular, and resembles measles, but the papules vary in size, and sometimes the eruption is scarlatiniform, or the minute papules may be crowned with minute vesicles. Kirn ‡ describes even small bullæ possibly due to scratching. Trousseau considers the sweat orifices

* A case illustrating this is reported by Bürtzeff. Abs. in *Brit. Jour. Derm.*, vol. iii. (1891), p. 396.

† See also L. de Saint-Germain, two cases, *Ann. de Derm. et de Syph.*, vol. i. (1890), p. 657. There is a good abs. of Morell-Lavallée's paper in *Brit. Jour. Derm.*, vol. iii. (1891), p. 395. Also Berlin Inter. Cong., *loc. cit.*

‡ *Wien. med. Presse*, No. 18, 1883.

to be the site of the lesions. Very free desquamation of the whole area often ensues.

No such eruption has hitherto followed hypodermic injection, erythematous or other lesions at the site of puncture being probably due to the free acetic acid used to dissolve the morphia. Hence it is probable that the eruption following its ingestion by the stomach, or by suppository, is consequent on reflex irritation.

Phosphoric Acid. Hasse records the occurrence, in a girl, of a bullous eruption like pemphigus from this drug. The eruption disappeared when the medicine was stopped, and recurred when it was resumed. Phosphorus has produced purpura, but only in a poisonous dose.

Quinine. The eruptions due to quinine, and occasionally to other cinchona preparations, are multiform in character, and vary much in severity. They are rather rare, considering how frequently the drug is administered. An eczematous eruption is not infrequent among the workmen in quinine factories, apparently due to external contact. Morrow analysed sixty cases from internal administration, and found thirty-eight erythematous, twelve urticarial, five purpuric, two vesicular, and bullous eruptions and other lesions are on record. They are more frequent in women, but the only cause assignable is idiosyncrasy, for although more common where the dose has been large or frequently repeated, a single dose of a grain or a grain and a half has several times been sufficient to produce a rash, and in one, half a grain produced an erysipelatous rash on one side of the face, which lasted twelve hours (W. Newman), while Burney Yeo * experienced an extensive erythema on the legs, four hours after a single dose of a quarter of a grain.

The erythematous form varies. As a rule, it is a scarlatiniform efflorescence, beginning on the face and neck, and spreading all over; or it may be partial, but symmetrical in its distribution. Sometimes the lesion is more distinctly papular, the papules being minute and acuminate or convex and morbilliform; even when more distinctly urticarial, the wheals are more often pink than white. All these forms are attended with severe itching and pricking, and may be preceded and accompanied by considerable constitutional disturbance, nausea, vomiting, a rise of temperature

* *Brit. Med. Jour.*, March 16th, 1889.

even up to 102°, and a pulse of 130 or 140. In one case, there was severe dyspnœa with large wheals (Floyer). The general erythematous eruptions are, unless transitory, followed by desquamation, which may be very copious, casts of the hands and feet being thrown off, and sometimes the exfoliation persists for several weeks or even two months (Köbner). Some think that desquamation may be produced without antecedent eruption, but this is highly improbable. In Neumann's case, the desquamation after the efflorescence lasted several weeks, and many abscesses and furuncles ensued.

In a case of Nunn, of Savannah, the erythema was in bright red patches, one inch in diameter, and almost unilateral, occupying the left side of the nose, cheek, and chin, flexure of left wrist, back of hand, and knuckles of fourth and fifth fingers; and in another case, it was on the palms and face.

In several cases, severe inflammation about the genitalia has occurred. In Schuppert's case, after six-grain doses, intense inflammation, with commencing gangrene of the scrotum, ensued; and in Köbner's case, there was an erysipelatous eruption of the scrotum. Purpura of the usual characters, has followed quite moderate doses; a grain and a half taken for four days produced it in Gaudet's case.

Vesicular eruptions are less common than any of the above. Heusinger * had a case in which there was a vesicular eruption like herpes, and Panas saw an eruption like the bullæ of pemphigus after large doses.

In Hagan's † case, a child of four and a half suffered from erythematous eruption for three years without the cause being suspected, the mother having been in the habit of dosing the child with quinine to prevent its taking cold.

The diagnosis can only be made from similar eruptions due to other causes, by knowing that the patient has taken quinine, and excluding other factors; in many cases, there is a history of previous attacks under similar circumstances. From *scarlatina*, the constitutional symptoms will generally assist in the differentiation, and there is often in the erythema a sharp line of demarcation from the normal skin contrasting with it, while that of scarlatina is never defined at the border.

* Quoted by Bergeron and Proust.

† *New York Med. Jour.*, March 28th, 1891.

The treatment is simple and effectual. Withdraw the drug, and use locally, soothing astringent lotions, such as calamine or sub-acetate of lead; the addition of liq. carbonis detergens ℥x to the ℥j assists in allaying the itching. Sometimes a saline purgative may be given with advantage.

Resin. "About as much as two walnuts" produced in a woman swelling of the face, followed by an urticaria, with small wheals, on the chest and arms (Jacob).*

Rhubarb. Litten † met with a case of severe hæmorrhagic and pustular bullous eruptions from ℥iij of infusion of rhubarb with bicarbonate of soda. Goldenburg had also a case with purulent bullæ.

Salicylic Acid. Heinlein ‡ observed a case in which, when the dose was raised to gr. 60, itching and tingling of the skin were produced, followed by diffuse redness of the left side of the face, the right side of the chest, and both lower limbs, with slight œdema of the eyelids, upper lip, and lower limbs, and a rise of temperature to 101°·8 and a pulse of 90. After an interval, the same dose was repeated; in a quarter of an hour, severe burning pain was felt, and in half an hour, severe general urticaria ensued, but was gone by the next day. Small doses could be taken with impunity.

In Wheeler's § case, there were vesicles and pustules on the hands and feet, with much sweating, which ceased when the drug was stopped. Freudenberg ‖ observed large petechiæ and vibices, followed in a week by profuse desquamation. The repetition of the drug after an interval produced the same result. Rosenberg ¶ records a bullous eruption which ensued several times after the administration of the soda salt, and was kept up as long as there was any salicylic acid in the urine. Demme observed urticaria in a child, after **salol.**

Santonine. Urticaria developed in a child shortly after taking

* Jacob, *Med. Press and Circ.*, March 3rd, 1880.

† Supplement *Brit. Med. Jour.*, May 21st, 1891.

‡ *Rundschau*, Bd. 19 (1878), Heft 10. Urticaria is also recorded in *Practitioner* for February 1879.

§ *Boston Med. and Surg. Jour.*, October 17th, 1878.

‖ *Allg. med. Central Zeitung*, October 26th, 1878.

¶ *Deutsch. med. Wochensch.*, 1886, No. 33.

three grains of the drug for supposed worms. It subsided in a couple of hours, after a warm bath (Sieveking).*

Stramonium produced an erythematous eruption in a case of Deschamps.†

Strychnia. A quarter of a grain of quinine three times a day having produced after the second dose a scarlatiniform rash, $\frac{1}{24}$ of a grain of strychnia was given instead, and the same kind of rash appeared (Skinner ‡). Dierbach accuses strychnia of producing pruritus and miliaria.

Sulphonal. Leloir describes a diffuse erythematous and macular eruption like a syphilitic roseola, chiefly on the trunk. Schotten and Engelmann report a diffuse scarlet eruption, one on the thighs, the other on the breasts; while Bresslauer has seen purpuric patches on the limbs.

Tannin.§ General urticaria followed the topical application of a one to fifteen solution of tannin to the pharynx in a case under the care of Lange, of Copenhagen.

Tar. When absorption occurs from its vigorous inunction over a large surface, shivering, fever, nausea, vomiting, and diarrhœa may ensue, with olive-green urine, black vomit and fæces. On the skin itself tar may also act injuriously; in some people a very moderate external use will produce swelling, redness, heat, and pain, and sometimes itching; vesicles and bullæ may form; also "tar acne," or inflammation of the hair follicles or sebaceous glands, from plugging of the orifice, producing papules or nodules with a black central spot; in a few cases, these papules break down and ulcerate. The application of the tar must be stopped at once on the occurrence of such symptoms, and free diuresis, produced by copious draughts of barley water, will often prevent or soon remove them.

Waldeck‖ records that an erythematous eruption occurred in

* *Brit. Med. Jour.*, February 18th, 1871.
† *Gazette des Hôpitaux*, 1878, No. 124.
‡ *Brit. Med. Jour.*, January 29th, 1870.
§ *Brit. Med. Jour.*, May 10th, 1890, from *Deutsch. med. Wochensch.*, January 2nd, 1890.
‖ *Deutsch. med. Wochensch.*, iv., 1879, No. 9.

a patient who was taking Guyot's tar capsules. Carbolic acid absorption from a Lister's dressing produced an "erythema urticatum" in one case (Zeissl).

Terebene. O. H. Garland* reports that after six five-minim doses, a profuse, bright red, intensely itching, papular rash was produced, first on the left hand, with much swelling, and then on both ankles, extending on the legs up to the knees. In the same patient, thirty years previously, a turpentine liniment produced a similar rash, with much swelling of the arm. Lascelles Scott experienced a similar rash, but ascribed it to the impurity of the terebene.

Tuberculin. Although tuberculin is not, strictly speaking, a drug, it is used as one, but always hypodermically, and it is therefore convenient to consider it here. The eruption may be in the form of diffuse redness, like scarlatina, or larger red papules, like measles, but not with the measles distribution. Individually the lesions, whether pin's-point or hemp-seed-sized, are situated at the hair follicles as a rule, but there may also be irregular patches of erythema, the size of the end of the thumb, scattered about the trunk. As a rule these eruptions, to which only a certain number of people are liable, recur after each injection, but not always in the same form. There is little or no itching, but there may be desquamation.

Turpentine has been followed by an erythematous redness, chiefly of the face and upper part of the body, minute papules, and sometimes vesicles, with intense itching, developing in some cases. In one case, minute acuminate papules, like shagreen, with violent itching, extended all over the body, the itching continuing after the rash had gone. In another, a bright red morbilliform eruption was produced by a teaspoonful of turpentine given to a child with diphtheritic croup. Feibes reports a conical papular eruption due to it.

The forms of eruption and the drugs that produce each are placed together in the following enumeration :—

Erythema. Arsenic, antipyrin, belladonna, boracic acid, bromine, chlorate of potash, chloral hydrate, chrysarobin, copaiba, cubebs,

* *Lancet*, May 22nd, 1886.

iodine, iodoform, morphia, salicylic acid, stramonium, strychnia, sulphonal, tar, tartarus boraxatus, terebene, tuberculin, turpentine.

Vesicular. Cannabis indica, chloral, cod-liver oil, copaiba, iodine, morphia, quinine, salicylic acid, turpentine.

Bullous. Bromine (one case), cannabis indica, copaiba, chloral, iodine, morphia, phosphoric acid, quinine.

Urticarial. Bromine, copaiba, iodine, resin, quinine, santonine.

Pustular. Arsenic, bromine (confluent), chloral, iodine (isolated), salicylic acid.

Purpuric. Chloral hydrate, chloroform inhalation (early stage), iodides, quinine, salicylic acid, sulphonal.

Pityriasis Rubra (?). Bichromate of potash.

Psoriasis (?). Borax, bichromate of potash.

Eczema. Bromine (Voisin), borax, chrysarobin, bicarbonate of potash, iodoform.

Gangrene. Arsenic, ergot, iodide, quinine (one case).

Persistent Desquamation. Quinine.

Abscess. Quinine.

Furuncles. Arsenic, bromine, quinine.

Ecthyma. Bromine.

Zoster. Arsenic.

Cyanosis. Antifebrin, monobrom-acetanilide.

Pigmentation. Arsenic, nitrate of silver, picric acid.

On reviewing these various drug eruptions, the number which produce some sort of erythema is very striking. Excluding those which, like nitrate of silver, merely produce discoloration, there are twenty-eight; out of these, twenty-three produce erythema, and of the other five, two excite urticaria and three vesicular or bullous eruptions.

The presumption is in favour of all these exanthematous rashes being due to a vaso-motor neurosis, either from reflex irritation, or direct action on the vaso-motor centres. Behrend's ingenious view that those drugs which did not produce special eruptions (dynamic eruptions) produced toxines in the body has no facts, only analogies, to support it, and is unnecessary, as the theory of reflex nerve influence is more probable, and is sufficient to account for them. Brooke supported this view in a well-argued paper, with which I agree. On the other hand, I can only accept Fox's view, that the eruptions produced by the external application of

drugs is of the same nature as those from the inside, so far as they may be classed with all irritants, which in predisposed persons will excite a widespread dermatitis from a local irritation. There are certain drugs about which there must be some reservation. They are belladonna, iodoform, and mercury, however introduced into the body, whether by the mouth, mucous membranes, or skin. The result is in certain people to produce an erythematous rash. Belladonna does so, probably, by its direct effect on the vaso-motor nerves, while it is unknown how the others act. The more special action of iodine and bromine has already been discussed.

ANIMAL POISONS.

Besides the injuries to the skin which may be inflicted by medusæ, many insects, such as the mosquito, the bee, the scorpion, and a host of others, certain animal poisons, which usually gain an entrance into the body by inoculation through some abrasion, pricks, or other trifling lesion, are liable to set up inflammation, sometimes of a phlegmonous character; the severity of the effect depending largely upon the special character of the poison and the susceptibility of the patient. These poisons may be specific, like those of splenic fever or glanders, or non-specific, as in dissection wounds. As the skin manifestations are the least important part of the disease in many cases, they can only be briefly considered here.

DISSECTION WOUNDS.

The inoculation of the virus derived from the dead bodies of men and animals gives rise to various troubles, local and general, or both, and of trifling or grave importance according to the period of the decomposition of the body, the cause of death, and the state of health of the recipient of the poison. Of the nature of the virus, we know little; it probably varies in its qualities, and is generally, if not always, of bacterial origin. It is most virulent in fresh bodies, and in those who have died of septic diseases. The poison gains entrance into the body through some trifling defect in the skin, such as a chap, prick, or abrasion.

In rare instances, acute and rapidly fatal septicæmia may arise, without local changes at the site of inoculation; while if pyæmia supervenes, it is always secondary to other lesions.

The brunt of the local effects falls upon the cellular tissue, the lymphatics, or the skin, in the last, the symptoms being almost always purely local, while in the first, they are often serious, and even fatal. When the cellular tissue is chiefly involved, diffuse cellulitis sets in, with brawny swelling of the tissues, starting and spreading rapidly from the point of inoculation. In some instances, so severe is the inflammation as to produce spreading gangrene; and the general symptoms are serious in proportion to the extent and severity of the inflammation. Lymphatic inflammation may attack either the vessels, or the glands, or both, with or without marked signs of inflammation at the site of inoculation; here again the general symptoms may be slight or severe.*

The skin lesions are ordinary boils, whitlows, onychia, or pustular folliculitis at the back of the hand. These present nothing special in their form or treatment.

There remain two more characteristic lesions—the Post-mortem Pustule and Wart.

The Post-mortem Pustule starts from some prick or abrasion, which becomes hot, red, and itching by the next day, and in another twenty-four hours, a pustule is formed, with pain and tenderness, relieved when the pustule is pricked; but pus again forms under the scab, with repetition of the symptoms, and this may happen again and again, each time the lesion becoming larger, unless suitable treatment is employed. Occasionally, there is sympathetic inflammation of the glands and lymphatics, and slight constitutional disturbance.

Treatment.—Open the pustule, drop in a little iodoform, and keep it moist with wet boracic lint under oiled silk until it has quite healed.

Verruca Necrogenica. *Synonyms.*—Post-mortem warts, Anatomical tubercle, Tuberculosis verrucosa cutis (Riehl and Paltauf).

Symptoms.—This is a rare and indirect effect of the irritation of frequent contact with decomposing animal matter, and occurs therefore chiefly in post-mortem porters, doctors, and others who have to do with the dead. It affects chiefly the knuckles and

* For more detailed information, see Holmes' *System of Surgery*, or similar work; or the article on "Post-mortem Wounds," by Marcus Beck, in Quain's *Dictionary*.

interdigital folds, and occasionally other parts of the hands and forearms. The case of the post-mortem porter of the East London Hospital for Children, will serve as a description of the affection.

When first seen by me, it had been present five years. Soon after he began post-mortem work, it started on the first knuckle of the left hand, where he had knocked off a piece of skin. It began as a red, slightly raised, flat papule, on which there was no pustule until some time afterwards. The pustule dried into a scab, which eventually fell off, leaving the surface slightly irregular. The papillæ became gradually more prominent, and the lesion spread at the periphery, but two or three years elapsed before it got quite horny. Meanwhile the disease had started at two other foci on the third and fourth knuckles, and, progressing at the rate of about half an inch a year, reached nearly all across the hand, where it formed an irregular, flat, warty mass, raised up about a quarter of an inch, with red, slightly raised, sinuous border and sloping edges. On picking off part of the horny covering, the red, slightly moist, hypertrophied papillæ came into view, and at times the patch itched and felt hot, and then, on lateral pressure, a little pus escaped between the papillæ, and gave him relief; otherwise it gave him no trouble unless he knocked it. A growth of this kind may go on spreading slowly for an indefinite time, though in some instances it becomes stationary at the border, and, involution taking place in the centre and progressing from within outwards, ultimately produces a spontaneous cure, but not without leaving a scar.

Under the name of **tuberculosis verrucosa cutis**, Riehl and Paltauf* have recently described a precisely similar affection, occurring in those who have to do with animals, dead or alive, such as butchers, coachmen, cooks, etc. Histologically, they describe it as a tuberculosis of the skin, intermediate between lupus and tubercular ulceration. In the upper part, the structure is much the same as in the papillary growths of ichthyosis hystrix, while in the papillary vascular layer, besides foci of inflammation, there were sometimes veritable miliary abscesses, the source of the pus, occasionally observed in the course of the affection. There were also caseating nodules, with the structure of tubercles, containing giant and epithelial cells, within which were bacilli,

* *Viertelj. f. Derm. u. Syph.*, 1886, Heft i., p. 19, with coloured plates of histology.

with the staining reaction of tubercle bacilli, and a few were also found free in the granulation tissue. These bacilli were more numerous than in lupus tissue, but by no means abundant, four or five in a nodule at the most; cocci were also present in the inflammatory tissue. These authors also found the same changes in "Verruca necrogenica"; hence they hold that both are the direct result of tubercular infection. On the other hand, A. Polisson of Lyons, failed to find tubercle bacilli in two cases. According to Unna, lupus verrucosus, which is seen occasionally on the hands and feet, is anatomically as well as clinically identical with this disease.

Treatment.—Riehl and Paltauf recommend scraping with a sharp spoon, and the subsequent application of caustic potash, nitrate of silver, or the iodoform bandage. I have found less severe measures effectual. The horny covering is first to be got rid of by applying repeatedly, for some days at a time, the strongest salicylic acid plaster of Unna, and this alone will get rid of a good deal of growth; the rest is destroyed with the fuming acid nitrate of mercury, applied with a piece of wood. The acid should be applied to only a small portion of the growth at a time, as it is in some cases very painful for some hours. The type case, one of the most extensive I have seen, was quite cured by these means.

PUSTULA MALIGNA.

Synonyms.—Anthrax, Malignant pustule; *Fr.*, Charbon; *Ger.*, Anthrax.

Definition.—A gangrenous carbuncular lesion, produced by inoculation with virus containing the bacillus anthracis derived from animals suffering from splenic fever.

Splenic fever is a disease of horned cattle, sheep, and horses, which may be communicated to man either by inhaling infective particles or by direct inoculation. The first mode of infection produces internal anthrax, a general and rapidly fatal disease without any skin affection; the second leads to external anthrax or malignant pustule, which is at first a local lesion, from which the general system is soon infected. This second or local variety, is the only one which will now be considered.

Being derived from contact with the hides or secretions of diseased animals, the exposed parts, such as the face, neck, and hands, are most commonly attacked. At the site of inoculation, there is at first considerable itching and burning, soon followed by the formation of a livid-red papule, on which arises a bulla with serous or bloody contents, or a pustule on an inflammatory areola. The bulla or pustule ruptures, and the dark red spot beneath, dries up into a black, gangrenous eschar a quarter of an inch or more in diameter, bordered by small vesicles or pustules on a hard base, the skin round for a considerable distance is of a dusky red hue, densely infiltrated, the boundary being well defined, and the tissues œdematous, or so indurated that it even creaks on section, while the glands and lymphatics of the affected region share in the inflammation. The gangrene may extend sometimes very rapidly and widely, with a speedily fatal issue, sometimes more gradually over a small area; when it is arrested, supposing the patient to survive, the slough separates in a variable time, according to its depth and extent, and healing follows by granulation, as in a carbuncle. In exceptional cases, a widespread and malignant œdema takes the place of the pustule.

The constitutional symptoms vary according to the extent of the gangrene and the surrounding inflammation, and later on, according to the secondary complications. By the time the black eschar has formed, general infection of the system has commenced, and shows itself by rigors, vomiting, swelling of the glands, pyrexia (which may reach 104° or more), severe pain in the head and bones; the patient sinks into a typhoid state and dies comatose, perhaps with convulsions, due to meningeal hæmorrhage, in thirty or forty hours; or, if the constitutional infection is a little less severe, lung or other complications arise, and occasion death in four to six days—seldom longer. On the other hand, in favourable cases, with suitable treatment, the symptoms gradually subside, the sloughs separate, and recovery slowly takes place.

There is thus (1) a period of incubation of from a few hours to a few weeks, without prodromata; (2) the development of the local primary lesion of papule, vesicle, and pustule, lasting from twelve to twenty-four hours; (3) consecutive brawny infiltration and œdema round it, gangrene in the course of the

next twenty-four hours, and death in two to eight days, or a protracted recovery.

Etiology.—The disease chiefly affects those who have to do with the hides of diseased animals, such as butchers, slaughterers, tanners, wool-sorters, etc. It is seldom derived directly from the live animals, but flies are sometimes the medium of its conveyance, while the flesh, if imperfectly cooked, and milk or butter from the diseased animals, have produced it in rare instances.

Pathology.—It is definitely proved that the disease is due to the presence of the bacillus anthracis, a rod-shaped organism $\frac{1}{2500}$ to $\frac{1}{1250}$ of an inch long, and $\frac{1}{18000}$ of an inch in diameter. This grows in the blood and all the tissues, and, after the first day or two, may be found not only in the fluid from the specific pustule, but also in the sweat, sputa, urine, and fæces. In the skin, it is distributed in the papillary layer, as has been demonstrated by Charlewood Turner,* A. Barker, and others.

Diagnosis.—The occupation of the patient, the position of the lesion, the presence of a gangrenous patch with vesicular border, extensive œdema, and induration round it, with the severe constitutional symptoms, leave little doubt of the nature of the affection.

Before the gangrene has declared itself, the occupation is often the only clue. Inoculation experiments on animals may be used for confirmation of the diagnosis, though it would not be right to defer treatment for this; a more ready method, would be to stain some of the fluid from the pustule, after drying it on a cover glass, and search for the bacilli. The lesion somewhat resembles a *malignant facial carbuncle*, a *primary chancre of the face*, or a *poisoned wound*, but the rapid progress and gangrene distinguish it from these.

Prognosis.—The mortality of this local form is about 33 per cent., but varies in different outbreaks. The extent of the gangrene, rapidity of its formation, and the constitutional symptoms, afford the best data for the immediate results; later on, the presence or absence of complications is the chief guide.

Treatment.—The good results from early† excision, cutting widely beyond the central lesion, leave no doubt about this being

* *Med. Chir. Trans.*, vol. lxv., 1882, in Davies-Colley's paper.

† Davies-Colley's paper, *loc. cit.* Case by Morrant Baker in *Brit. Med. Jour.*, June 14th, 1884, with coloured lithograph.

the proper course to pursue. The injection of iodine or carbolic acid (5 per cent. solution) under the eschar is a good but less radical and more uncertain measure; thus Buck of Leicester, records a case of recovery which was treated in this way, together with the administration of large doses of hyposulphite of soda and large quantities of meat; the good result was probably due to the carbolic acid at the same time. J. B. Gresswell has had marked success in treating splenic fever in cattle with the sulphite of soda, so that the salt deserves further trial; large doses of quinine, five or ten grains every four hours, are also strongly advocated. An exclusively animal diet is recommended, on the ground that the disease is not communicable to the carnivora; but this is not true for cats and dogs, which die if they eat the uncooked flesh of a diseased animal.

EQUINIA.

Deriv.—*Equus*, a horse.

Synonyms.—Glanders, Farcy; *Fr.*, Morve; *Ger.*, Rotz.

Definition.—A contagious, specific disease, with general and local symptoms, derived from the horse or ass.

Glanders is fortunately a very rare disease in the human subject. The attempt made by some authors to distinguish between glanders and farcy is not scientifically sound or practical, and it is best to divide it into acute, subacute, and chronic. The acute cases terminate within four weeks, and are almost invariably fatal; the subacute go on to six weeks or so; the chronic may last for months or years, about 50 per cent. recovering.

Symptoms.—The general symptoms set in from three days to three weeks after inoculation, the site of which is not always ascertainable. The early symptoms are vague and indefinite, of the usual febrile characters, among which prostration, constipation, and vague muscular and articular pains, when severe, perhaps ascribed to acute rheumatism, are the most distinctive. Later on, the pyrexia gets more marked, with severe rigors, profuse sweatings, and diarrhœa instead of constipation; the patient sinks into the typhoid state, pyæmia, with or without jaundice, may supervene, and he dies exhausted.

The local manifestations affect chiefly, and most distinctively, the mucous membranes, the skin, and the lymphatics.

One of the most characteristic symptoms is a nasal discharge, catarrhal at first, then purulent, and often sanious, but always thick, tenacious, and offensive; the inflammation spreads to the respiratory, oral, and ocular mucous membranes, with corresponding symptoms. This nasal discharge may occur very early, and be very profuse, as in acute glanders, or quite late and moderate, as in some chronic cases, and is due to ulceration of the mucous membrane, which goes even down to the bone, and leads to perforation; it is invariably present at some time or other in acute and subacute, but in not more than half the chronic cases. If the disease has gained entrance through a wound or abrasion, the site of inoculation becomes painful, tense, red, and inflamed, and a spreading ulcer forms, with foul, loose, irregular edges, chancroid aspect, and dirty sanious and often offensive discharge. There is swelling and often inflammation of the neighbouring lymphatic vessels and glands, and phlegmonous inflammation, with numerous pustules and ulcers, may affect the whole limb or region, in which the disease started.

The special and characteristic skin lesions begin deep in the corium. In from two days to three or four weeks, they appear on the surface as scattered groups of red spots, which soon become shot-sized papules and change to yellow, and may thus sometimes be mistaken for pustules; but pustules the size of a pea on livid red bases, and rather like variola pustules, are produced if the papules get vesicular or bullous. These may coalesce into irregular superficial ulceration, with dirty sloughy coating, or dry, black, gangrenous patches may form. Infiltrations also occur in the subcutaneous tissues, and break down into large deep sloughs; these skin lesions are not invariably present in all acute cases, the patient sometimes dying before they come out. Besides the lymphatic vessels and glands in the neighbourhood of the inoculation, those elsewhere also, enlarge and inflame. The nodules thus produced are called in the horse, where they are very numerous and marked, "farcy buds"; these "buds" may either resolve, or more often suppurate in a low form, and break down into foul ulcerating cavities, with indurated and irregular edges and base.

These various lesions, the erythema, phlegmonous processes,

pustules, abscesses, and ulcers may affect almost the whole surface, and with the joint troubles, fill the patient's cup of misery to the brim.

Etiology.—The disease occurs almost exclusively in those who have to do with horses, and so only in male adults; a very few instances have occurred, where it has been conveyed to women and children by the husband and father, who was the first victim. The disease arises, either by direct inoculation of the secretions themselves on a wound, or through the mucous membrane or entire skin; *e.g.*, where the horse has snorted in the victim's face, and so inoculated the eyes, nose, and mouth.

Pathology.—It is due to a specific micro-organism, a bacillus the size of the tubercle bacillus, culture inoculations invariably producing the disease, as was proved by Loeffler and Schütz. Bouchard, Charrin, and other observers have made similar, but not such conclusive discoveries.

Diagnosis.—When there is no history or evidence of inoculation or contact with glandered animals, this may be difficult until the symptoms of skin, lymphatic, and mucous membrane lesions are declared. There is no difficulty when these sets of symptoms are present.

Prognosis.—This is always serious, and in proportion to the acuteness of the symptoms.

Treatment.—Nothing has been of any avail in acute cases. In chronic ones also, the treatment is on general principles—to keep up the strength of the patient, and to give large doses of quinine.

VACCINATION RASHES.*

Vaccination is too often falsely accused of a large proportion of infantile eruptions; at the same time it cannot be altogether acquitted of being the indirect cause of rashes which are not, however, special to it, and are usually transitory, and, if the enormous number of children vaccinated be considered, extremely rare. Moreover, since there is seldom more than one of several

* *Literature.—Vaccinal Eruptions*, G. Behrend, *Amer. Arch. Derm.*, vol. vii., October 1881. "Vaccinides," by Dauchez, *Thèse de Paris*, 1883. "Vaccinal Eruptions" (five cases), Napier, *Glasgow Med. Jour.*, June 1883, p. 424. Morris, "Introduction to Discussion on Vaccination Eruptions," *Brit. Med. Jour.*, November 29th, 1890.

vaccinated from the same lymph who show any eruption, it is obviously the soil rather than the seed that is at fault, and that it is not due to "bad matter," as the laity generally imagine; and indeed, true vaccine eruptions are more common from calf than from humanised lymph vaccinations.

The following classification is modified from the one proposed by Morris,* as it did not quite cover all the facts:—

Group I.—Eruptions resulting from pure vaccine inoculation.

A. Secondary local inoculation of vaccine.

B. Eruptions within the first three days before the vesicles form, which include urticaria, erythema multiforme, vesicular and bullous eruptions.

C. Eruptions following the development of the vesicles due to the absorption of the virus, include: (*a*) morbilliform, scarlatiniform, and diffuse erythema, erythema multiforme, vaccine lichen, and purpura; (*b*) generalised vaccinia, "vaccine généralisée" of French authors.

D. Sequelæ of vaccination, eczema, psoriasis, urticaria, etc.

Group II.—Eruptions due to the vaccine plus some other virus.

A. Introduced at the time of vaccination.

(*a*) Producing local disease: impetigo contagiosa (exceptional), or other form of superficial inflammation.

(*b*) Producing constitutional disease: syphilis, leprosy, tuberculosis (?).

B. Introduced after the development of the vesicles nearly always after the eighth day: erysipelas, cellulitis, impetigo contagiosa (common), furunculosis, gangrene (local or disseminate), pyæmia.

It will be observed that the eruptions in Group I. are unavoidable with our present knowledge, and are largely, if not entirely, dependent on the idiosyncrasy of the patient. Those in Group II., on the contrary, are all avoidable; those in Division A. by scrupulous care on the part of the operator, either as regards cleanliness of the patient's skin, or of his instruments, to avoid the local effects of A. (*a*), while A. (*b*) may be avoided by care in the selection of the vaccinifer and in the mode of taking the vaccine from

* "Introduction to a Discussion on Vaccination Eruptions at the Derm. Sect. Brit. Med. Assoc. at Birmingham," *Brit. Med. Jour.*, November 29th, 1890.

the vesicle. Very much may be done to avoid the diseases under B. in this group by the preservation of local antisepticism, *e.g.*, by covering the vesicles with alembroth wool, which may be tacked to the sleeve, and by seeing that the surroundings of the patient are thoroughly hygienic. The last point is not, however, in the doctor's hands as a rule.

Taking the above eruptions in their order—

Secondary inoculation * sometimes occurs between the formation of the primary vesicles and the eighth day, and in such cases the secondary vesicles catch up, so to speak, the primary one, and are mature at the same time. Of this kind is Padieu's † case of confluent vaccination over an eczematous surface, from which the child's mother and nurse were accidentally inoculated on the face. Lacour records a similar case, with fatal result. Under exceptional circumstances, chiefly after animal vaccination, the vaccine eruption, instead of being confined to the points of inoculation, is widely spread, the "vaccine généralisée" of French authors. Thus Dr. Longstaffe of Wandsworth records the case of his own child, in which there were between eighty and ninety secondary vesicles, seventy of which were on the vaccinated arm.

It is still a matter for discussion whether this multiplication of vesicles is only a result of secondary inoculation or of a true generalisation of the eruption. Some of the instances reported have been from erroneous diagnosis, such as impetigo contagiosa or the confluent bromide eruptions, or, as in Gaucher's case, were probably examples of mild ulcerating vaccinia, such as will be described under Vaccinia gangrænosa. Colcott Fox ‡ showed what seemed to be a genuine case of generalised vaccinia in a child nineteen days old. The vaccine lesion ran a normal course until the ninth day, when lesions began to appear all over the body, and a large number of pustules very like those of vaccine developed.

The other general eruptions under C. have very little that is special to vaccination, similar lesions being produced by other

* Dr. Shirley Murphy, who had large experience as one of the directors of the Government animal vaccine establishment, informs me that this secondary inoculation is not at all uncommon. What he considered a well-marked case of this was brought to U.C.H. in the summer of 1886, with apparently typical vesicles on the buttocks.

† Quoted in *Amer. Arch. Derm.*, vol. vii., p. 89.

‡ Derm. Soc., June 8th, 1892.

causes. Under the name of **roseola vaccina**, Hebra describes an erythematous eruption, appearing from the third to the eighteenth day after vaccination, analogous to that seen sometimes at the onset of variola. The eruption consists of red maculæ from a threepenny piece to the palm in size, commencing usually upon the arms, spreading sometimes all over, and leaving no trace behind. It is accompanied occasionally with a slight rise of temperature, lasting only a few hours. This form of eruption is rare in my experience, and as a rule the papules are smaller. Thus in one such case they were flat, from a pin's head to the third of an inch, except one palm-sized patch on the left breast; and on the legs they were pin's-point-sized, and acuminate. Behrend also describes this as morbilliform. I have, however, seen extensive diffuse erythema on the trunk, while on the limbs there were papules and papulo-vesicules.

The eruption which I find most common, and of which I have notes of over twenty cases, is the so-called **vaccine lichen.** It may be either **papular, papulo-vesicular,** or **pustular,** very rarely **bullous.** It comes out from the fourth to the eighteenth day, most frequently on the eighth; begins on the arms in half the cases, and on the trunk, neck, or face in the rest; then, by successive crops, it may spread over a considerable part or even the whole of the body, pretty evenly distributed, and sometimes tending to form circles or segments of circles.

The papules are acuminate, pin's-point-sized, and bright red, and these characters may be preserved to the end. They usually remain discrete, but sometimes coalesce into patches; but, as a rule, a good proportion of the papules are crowned with small vesicles and pustules, and have a red areola sometimes half an inch in diameter, the vesicles or pustules being generally small. In a moderate number of cases the eruption as a whole is vesicular, or rather papulo-vesicular, but it is rarely entirely pustular.

In the vesicular cases, sometimes the vesicles enlarge and become herpetiform, and more rarely bullous, as recorded by Behrend and others; but I have never seen more than one or two vesicles large enough to be called bullæ. When the small vesicles dry up, they leave the base as a flat, shining papule like lichen planus. There is rarely any constitutional disturbance, and usually only moderate itching, though occasionally it is severe. The rash lasts from a few days to a week or two, but in some of the vesico-

pustular cases, fresh crops keep on appearing, perhaps for months, attended with considerable itching, precisely similar to the **varicella prurigo** of Hutchinson. The following case illustrates a good many features of these eruptions.

A week after vaccination, a general, red, conically pointed, papular eruption appeared, lasted a week, and then became vesicular, first on the shoulders and then down the arms and legs, feet, palms, soles, and slightly on the trunk; the vesicles became pustules from one-sixteenth to one-eighth of an inch in size, with a slight red areola; there was much itching, and the eruption continued to come out in crops for some time. Wheals are not uncommon in connection with the pruritic cases, probably due to scratching, but they are not often seen in the early periods; occasionally **urticaria** is present as early as the second day, but it is much more common as a sequela.

Behrend records typical cases of **erythema exudativum multiforme** in the first week of vaccination, and I have seen a well-marked case which began on the ninth day. The flat papules enlarged up to flat patches the size of a shilling, and cleared in the centre into rings. Napier met with a case which began as rings on the eleventh day.

Erythema exudativum and **urticaria** have also been noticed in revaccination. Gregory* has described hæmorrhagic vaccinia.

Eczema may either start from the vaccinia pustules in the same way that it may start from any other form of dermatitis, or begin elsewhere soon after vaccination. It appears to excite it only in predisposed subjects, being, as it were, only the match to the train already laid, and by no means always in these, as eczematous children, who are in otherwise good health, may often be vaccinated without any aggravation of existing disease, and vaccination has indeed sometimes, proved curative. In no case, can vaccination be held responsible where the vaccinia pustule has completely healed before eczema appears.

Among what may be called curiosities may be mentioned a case of psoriasis, described by Chambard,† which was excited by vaccination, and two by Rohé, one a man, the other a boy; both had

* Quoted in Hutchinson's *Archives of Surgery*, vol. i., p. 195.

† *Ann. de Derm. et de Syph.*, vol. vi. (1885), p. 498; *Amer. Jour. Cut. and Ven. Dis.*, Rohé, vol. i., p. 11. Piffard, p. 119, and T. Wood, p. 161.

been vaccinated from the calf. Still more inexplicable, Diday describes a case in which sixty days after inoculation round each of the cicatrices a coronet of hairs sprang up, which were three-eighths of an inch long four months later. Keloid* has occasionally developed on the site of the vaccination scars. This is more likely to occur where from any cause there has been a delay in the healing of the vaccinia vesicles.

Although a very rare occurrence, the possibility of communicating **syphilis** by vaccination has been established by Hutchinson, Cory, and others;† and the same still more rare possibility must be considered for **leprosy**. Besides Daubler's two cases from Robben Island, is the case related by Gairdner. I am not aware of any recorded case of tuberculosis being inoculated with vaccinia.

Of the other avoidable eruptions, impetigo contagiosa is very rare, as indeed it ought to be, directly resulting from the operation; but as a sequel it is very common. The pus of the vaccinia pustule becomes inoculable from the deposition of pus cocci from the air or from those already in the skin, and the inoculable pus is conveyed to other parts of the body by the child's fingers, chiefly at the time when the vaccinated arm becomes irritable. Furunculosis occurs from the absorption of these cocci and dissemination through the circulation. Erysipelas, cellulitis, and pyæmia occur chiefly, when the hygienic surroundings are faulty.

The ulcerative and gangrenous lesions may be local or disseminated. I remember a case in which the child was unwittingly vaccinated during the incubation of scarlatina, which developed before the eighth day of vaccination. The whole of the four vaccination places coalesced into a slough the size of a crown piece. The child recovered. Balzer met with a similar result after revaccinating a syphilitic subject. Hutchinson‡ relates similar cases, some fatal. The disseminated form will be described with other forms of gangrene of the skin.

The treatment of the erythematous vaccinides is very simple, as they rarely last more than a week or two. A laxative, with a

* Hutchinson, *loc. cit.*, p. 197.

† Such cases scarcely ever occur now. At the East London Hospital for Children, where the patients were the poorest of the poor, over twenty thousand cases passed through my hands, and I never saw a case, nor did any of my colleagues there, or I should certainly have heard of it. Colcott Fox has had a similar negative experience at a children's hospital.

‡ *Loc. cit.*, vol. i., pp. 97, 193.

soothing lotion to allay irritation, such as liq. carbonis detergens ℥v to ℥j of water or calamine lotion, would fulfil all requirements for the dry forms. For the moist, a weak boracic or iodoform ointment would be preferable. The treatment for the other eruptions will be found in their own sections.

SPHACELODERMA.

Deriv.—σφάκελος, gangrene.

Synonym.—Gangrene of the skin.

Apart from injury, death of a more or less extensive portion of the skin may occur as a kind of pathological accident in many conditions, chiefly of inflammatory origin. Most of them may be classified under one or other of the following heads, but in some, we are at a loss to know under which category it would be correct to place them. All are due to obstruction of the circulation in the part, and that chiefly arterial. A hæmorrhage into or beneath the skin may also lead to death of the part and sloughing, as I have often witnessed.

I. Within the vessel . { Embolism. / Thrombosis.

II. Changes in the wall { Acute arteritis. / Syphilitic arteritis. / Calcareous degeneration, *e.g.*, senile gangrene. / Contraction of the muscular or other coats. { Spasmodic, *e.g.*, symmetrical gangrene. / Chronic, *e.g.*, ergotism. } / Trophic defects, *e.g.*, acute decubitus. }

III. Pressure on the vessels from without { Inflammatory effusion round a vessel. / Tumours, etc.

Some, like **noma** and **dermatitis gangrænosa infantum**, are probably bacterial, and possibly that occurring in diabetes has a similar origin. The destruction is seldom limited to the skin, affecting the other tissues more or less deeply.

A considerable number of cases of apparently **spontaneous gangrene** of the skin have been recorded in medical literature as occurring generally in hysterical young women ; they are usually classified as **erythema gangrænosum**, already alluded to (p. 82), and are always to be regarded with grave suspicion of their being self-induced.

An interesting case of acute multiple gangrene of the skin in a hysterical girl, æt. twenty-one, is recorded by Doutrelepont,* and may be taken as the type of such cases. Although the lesions vary considerably according to their mode of production, the striking feature is that the general health is remarkably good, in fact too good for any one to have such severe lesions produced by any constitutional condition, and they are unsymmetrical and mainly left-sided.

A paronychia gangrænosa has been described by G. H. Todd,† resulting in the loss of the terminal phalanges. See also Morvan's disease.

Only three kinds of gangrene of the skin need special description here, viz., symmetrical gangrene of Raynaud, dermatitis gangrænosa infantum, and diabetic gangrene.

Symmetrical Gangrene. *Synonym.*—Raynaud's disease.

Definition.—A local arterial ischæmia generally followed by asphyxia occurring at the periphery of the circulation, and producing symmetrically distributed gangrene of the skin and other tissues in the affected region.

This disease, the extreme forms of which are rare, was first described by Raynaud,‡ and his observations have been confirmed and extended by Barlow, Southey, and others.

Symptoms.—It begins usually after exposure to cold, and often without any premonitory symptoms, except sleepiness. The parts most frequently attacked are the fingers and toes, especially the second and third phalanges, though the nose and ears are not uncommonly involved. The affected parts become pale and hard, followed by swelling, numbness, and sharp darting or stabbing pains. The ischæmia and consequent discoloration increase rapidly or slowly until the part becomes quite black, in a period varying from a few hours to a few weeks. Black bullæ

* *Viertelj. f. Derm. u. Syph.*, 1886, Heft. ii., p. 179, with coloured plates, and sequel in vol. for 1890, p. 385.

† *Dub. Hosp. Rep.*, vol. ii., p. 274.

‡ "De l'Asphyxie locale et de la Gangrène symétrique des extrémités," *Thèse de Paris*, 1862, and *Arch. Gén. de Méd.*, vol. i., pp. 5, 189 (Paris, 1874). A translation by Dr. Thomas Barlow, for the New Sydenham Society, with valuable notes, is published in *Selected Monographs*, 1888.

sometimes appear at the line of demarcation, which has on its border a red band. Separation of the whole, or part of the tissues of the affected area, slowly ensues.

Variations.—Any part of the body, limbs, trunk, or face may be attacked in exceptional cases. As a rule, only two extremities are involved, but sometimes all four. Thus in Southey's case,* a girl of two and a half, it began on the calves, after a slight feverish attack, and then numerous patches, becoming rapidly gangrenous, appeared on the backs of the legs, thighs, buttocks, and upper arms, worst where there was pressure, the child dying thirty-two hours from the onset.

The process may, however, stop short of the death of the part, which may simply become white, cold, and hard like wax, and after remaining so for a few minutes or a few hours, recover, to be, however, again attacked after a varying interval, the local syncope eventually passing on to a local asphyxia; or there may be local asphyxia without antecedent local syncope. This mild condition may also be present on one side, while the other side becomes gangrenous, as in T. Smith's case,† a girl of three years, in whom the left hand was cold and livid, while on the right there was lividity, going on to gangrene of the fingers and thumb up to the first knuckles, where complete separation occurred; or the whole of the phenomena may be entirely unilateral, but this is exceptional.

Etiology.—The disease affects both sexes; in adults, males more than females, probably on account of their being more exposed to vicissitudes of temperature; but all ages are liable to it, ranging from two and a half to sixty-three, of whom a large proportion are children.

Few positive statements as to more direct causation can be made, though exposure to cold has been the determining influence in a large proportion; hence the disease occurs chiefly in the winter. Some cases have occurred after diphtheria, typhoid, scarlatina, measles, malaria, and syphilis, one in connection with multiple tumours (B. O'Connor), two with diabetes (Raynaud and C. Fox), many with hæmoglobinuria (Wilks, Barlow, Southey, etc.). End-joint arthritis, temporary eye symptoms, and mental derangement have also been observed in a few cases.

* *Path. Trans.*, vol. xxxiv. (1883), p. 286.
† *Clin. Soc. Trans.*, vol. xiii., p. 196.

On the other hand, many have had no such special antecedents, though it is common to find that the sufferers have habitually cold hands and feet, are liable occasionally to chilblains, "dead or waxy fingers," or other symptoms of a circulation the force of which is exhausted before it reaches the periphery, although the heart is not necessarily a weak one. An impressionable nervous system is present in a good many of the patients.

Pathology.—There are evidently arrest of the arterial supply of blood, and venous stasis, followed by transudation of blood constituents into the tissues. There is a presumption in favour of spasm of the arterioles, as the immediate antecedent of these conditions, though whether due to a central or peripheral nerve influence cannot be established; Raynaud thought it was central, Pitres and Veillard regard it as a peripheral neuritis, while Buzzard thinks it is central and due to a blood poison. The association with other nervous phenomena in some cases, such as diphtheritic paralysis, or hæmoglobinuria, is confirmatory of its neurotic origin, and there is growing evidence in favour of peripheral neuritis.

Diagnosis.—This is usually easy. The occurrence of coldness and lividity, followed by gangrene of the extremities, symmetrically distributed, is pathognomonic, and even where actual death of the part does not occur, the symmetry is very significant, though it may be unequal in degree.

Prognosis.—Where the area involved is extensive, or the patient very young or very old, or broken down in constitution, the prognosis is serious; in more limited cases, the dead parts separate or are removed, and the patient gets well, though he is liable to other attacks.

Treatment.—The constant current, applied with one pole along the spine and the other along the extremity to diminish the irritability of the vaso-motor centres, was recommended by Raynaud, and has been found to give marked relief. Barlow obtained better results by immersing the end of the affected limb in a large basin of salt water. One pole is placed in the water, the other is applied to the limb. The current is used as strong as the patient can comfortably bear, contact being made and broken frequently to produce contractions of the limb. Shampooing is also a useful adjunct. When galvanism is used quite early, the full development of the attack is averted. Hot

applications should be avoided, cold and friction, as in frost-bite, being preferable. Nitrite of amyl and nitro-glycerine have been tried ineffectually. In cases associated with intermittent hæmoglobinuria, quinine in three-grain doses may be given. Voisin uses oxygen foot-baths. When gangrene has actually occurred, the limb is treated on the ordinary surgical principles for dry gangrene.

Dermatitis Gangrænosa Infantum. *Synonyms.*—Varicella gangrænosa (Hutchinson), Pemphigus gangrænosus (Whitley Stokes) Rupia escharotica (Fagge); *Fr.*, Ecthyma térébrant.

Definition.—A gangrenous eruption, following varicella and other pustular eruptions of children.

This rare condition was first described by Hutchinson* as a complication of varicella and subsequently of vaccinia† also, and since then many cases have been observed by Barlow, Lees, Haward, Payne, myself,‡ and others; there can also be little doubt, as Hutchinson remarks, that Whitley Stokes' description of an epidemic of "pemphigus gangrænosus" in Ireland in 1809, and, as Barlow has pointed out, the "rupia escharotica" specimens in Guy's Hospital museum,§ refer to the same condition. I have, however, ventured to depart from the name bestowed on it by Hutchinson, since it is not, as will be presently shown, always secondary to varicella and vaccinia.

The place of onset and mode of development vary according to whether the gangrene appears early or late in the course of the varicella, or is independent of that disease.

If it occurs while the varicella lesions are still present, it begins on the head or upper part of the body, and instead of the scab being thrown off ulceration occurs beneath it, and often a pustular border with a red areola is formed, the whole resembling a vaccination pustule. The process extends, both in depth and peripherally,

* *Clinical Lectures on Rare Diseases of the Skin*, p. 235, and a full account, with plate, in *Med. Chir. Trans.*, vol. lxv. (1882), p. 1.

† A case of vaccinia gangrænosa with recovery is also recorded by Stokes of Dublin, in *Dublin Jour. of Med. Science*, June 1880. It began forty-eight hours after vaccination.

‡ See paper by the author in *Med. Chir. Trans.*, vol. lxx. (1887), p. 397: "Multiple Gangrene of the Skin in Infants, and its Causes," with numerous cases.

§ Models 206-209. *Catalogue*, p. 95.

until a black slough is formed from a quarter of an inch to an inch or more in diameter, the smaller ones still with a pustular border and areola. After attaining to a certain size, varying very much, the process of separation sets in, and when completed, a sharp-edged, roundish or oval, conical ulcer is formed, deep or shallow in proportion to the diameter of the slough, some of the largest being quite three-quarters of an inch deep in the centre. Extension of the ulcer seldom takes place after the separation of the slough has commenced. When they are closely aggregated, coalescence will probably ensue, and then very large ulcers, irregular both in contour and floor, are produced. If any fresh crops are formed, or when it develops after most, if not all, of the varicella lesions have cleared off—perhaps a fortnight or more from the onset—or in cases following vaccination or otherwise unconnected with varicella, the ulcerative lesions usually commence on the lower half of the body, especially the buttocks and thighs. Each lesion begins as a pin's-head-sized papulo-pustule, which extends to the size of a pea or larger, ruptures, and, except on the buttocks or wherever it is kept moist, dries in the centre to a scab, with the pustular border and red areola like vaccinia, and from this point, follows the same course as those which started in a varicella pustule. In some cases, the buttocks and parts in contact with the napkin, and sometimes the legs and thighs, are fairly riddled with ulcers of all sizes, shapes, and depths. On the trunk and rest of the body they are not usually numerous; and though some may be very large and deep, the majority are comparatively superficial. Where the lesions are numerous and deep, there is naturally much constitutional disturbance, the temperature ranging up to 104° F. or even higher; lung complications, tubercular, pyæmic, or inflammatory, are very frequent, and determine or hurry on the fatal issue. Should the child survive, it is surprising how rapidly the lesions cicatrise, of course leaving deep and indelible scars.

Variations.—In some of the worst cases, where the malignant change occurs very early—*e.g.*, in a case of my own on the third day, and in W. Haward's * on the fourth—hæmorrhage takes place into the vesicles, which, from being quite clear, become almost black, perhaps the whole of them in the course of twenty-four hours undergoing this change. In my case, the temperature rose to over 105°, and the child died on the twelfth day after the change

* *Brit. Med. Jour.*, 1883.

in the vesicles. Post mortem, there were numerous, small, softening infarcts in the right lung, and broncho-pneumonia in the left. In Haward's case, the child died on the eleventh day, and in it also, there were pyæmic abscesses in the lung.

On the other hand, there are cases of much milder grades than those described, and they are more common than the severe form. The ulceration may be quite superficial, the lesions reaching to the vaccinia-like stage, and then drying up, and there are all degrees, from mere excoriations to pretty deep ulceration, with or without a few lesions going on to gangrenous sloughs.

Sometimes the eruption is distinctly bullous, *e.g.*, in a girl of two years old it began as a bulla with clear contents half an inch across, then became pustular; other bullæ appeared, and some began to ulcerate, but no sloughs were formed, and there was no evidence whatever of varicella. In the vaccination cases, the ulcerative lesions do not start from the vaccinia vesicles, though beginning usually on the vaccinated arm. Their development and course are the same as the others, and they are of all grades of severity.

In the mildest varicella cases, fresh crops of papules and pustules keep on appearing, and the process may last for weeks, accompanied by a good deal of itching, but very little if any ulceration. This is the "**varicella prurigo**" of Hutchinson.

In Atkinson's* case, the ulcers were chiefly on the extremities; the soft parts of one finger were completely destroyed, and there was extensive ulceration of the face, mouth, and tongue. The child had no constitutional taint, and recovered.

Etiology.—All the cases hitherto recorded have occurred in infants or young children; an analysis of my own and eleven of others in which the age is stated, shows that by far the majority occur under one year, the figures being fourteen not exceeding one year, six not exceeding two years, and three under three years of age; the youngest was three months old.

My colleague, R. Parker, had a case of a girl of twelve, in whom a hydroa was aggravated by the administration of iodide of potassium into hæmorrhagic bullæ, which then discharged and gave rise to extensive ulcerative and sloughing lesions, very suggestive of the disease under consideration. By far the majority occur in

* *Amer. Jour. Med. Sciences*, January 1884, quoted in *Brain*, January 1885.

girls, fifteen out of twenty-one cases where the sex is mentioned, and of my own cases, ten out of twelve were females. With regard to the diseases antecedent to it, my own cases are alone available for reference, most of the other reporters of cases having accepted Mr. Hutchinson's first opinion, which he does not now hold, that they were all consequent on varicella or vaccinia. One, a mild case, was after vaccination; in five others, there was not the slightest evidence of varicella, and in one, the child had been under close observation for lichen planus infantum, and the ulcerative lesions appeared to develop on miliaria rubra pustules. These facts suggest that under certain circumstances, any eruption of isolated pustules may be the starting-point of the ulcers. Among predisposing causes, tuberculosis has been present in so many, as Barlow first pointed out, that it must be more than a mere coincidence. In one of my fatal cases, congenital syphilis was present, in two others rickets, while a few were apparently quite healthy. A febrile condition is nearly always present. Gangrenous ulcers, of probably similar character, occur sometimes as a complication of variola in adults as well as in children.

Pathology.—Nothing is positively known about the pathology, except that Ehlers of Copenhagen has discovered the bacillus pyocyaneus in two cases of so-called "ecthyma térébrant" in children. Œttinger, however, has found the same bacillus in relation to a pemphigus diphtheriticus with a gangrenous aspect, and Neumann of Berlin found it with internal and cutaneous hæmorrhages. Even if this is not the constant pathogenic agent, it is highly probable that the lesions are due to microbic infection supervening upon varicella and other pustular eruptions in children, under certain constitutional conditions, of which a febrile state, tuberculosis, and probably congenital syphilis, are the chief, but evident cachexia is not essential.

Diagnosis.—This is not difficult, with or without a history of varicella, the occurrence of numerous gangrenous ulcers in a young child, or even of deep ulcerations, beginning as pustules, enlarging, drying into a scab in the centre, and then ulcerating, form a group of symptoms quite unmistakable.

Prognosis.—This is serious in proportion to the tender age of the infant, the number, extent, and depth of the lesions, the amount of constitutional disturbance, the presence of tuberculosis, pyæmic or other lung symptoms.

Treatment.—This must be general and local. Quinine in one or two-grain doses in milk every four hours is often serviceable. In some of my cases, sulpho-carbolate of soda in five-grain doses every three hours has been apparently beneficial, and my colleague Coutts had a rather severe case recover under treatment by opium. Any complications must be treated as they arise.

Locally.—Wet boric lint under oiled silk until the sloughs have separated, and subsequently iodoform or iodol vaseline, will keep the ulcers antiseptic; freshly made iodide of starch paste painted on is another convenient application; and Pasteur of London found a warm solution of chlorinated lime on lint give most relief. These measures and the administration of concentrated, or in young infants, partially digested foods, and putting the patient in the best hygienic conditions, offer most chance of success.

Hilbert* records two cases of **spontaneous gangrene of the eyelids** in female infants under one year old; a small pustule, with yellow scab, first formed without apparent cause on the upper lid, rapidly enlarged, the part beneath became gangrenous, and when the slough separated a circular ulcer, nearly an inch in diameter, was left, which healed rapidly. Both children were healthy and well nourished.

Multiple Gangrene in Adults. I have seen two cases in adults: one was a woman, who, after suffering from some suppurative lesion of the vagina before she came to the hospital, broke out with precisely similar lesions to those of infants, in almost all parts of the body, the lesions coming in crops. They had scarcely healed before a second outbreak occurred with a rise of temperature, and this time the face was affected and disfigured with rather deep ulcers. The other case was a man, in whom the number of lesions was small, but symmetrically distributed, the condition being produced during convalescence from scarlatina.

Diabetic Gangrene. Kaposi† describes a bullo-serpiginous form of gangrene which is apt to occur in advanced cases of diabetes mellitus. A few patches are formed on the limbs in successive

* *Viertelj. f. Derm. u. Syph.*, vol. xi. (1884), p. 117.

† Kaposi, *Wien med. Presse*, quoted in *Ann. de Derm. et de Syph.*, January 24th, 1884, with review of other skin lesions connected with diabetes. See also Quéhéry, *Thèse de Paris*, 1885, abst. *loc. cit.*, 1885, p. 690.

outbreaks, beginning with bullæ on a slightly raised base; the bulla dries up in the centre, and is occupied by a black crust, whilst at the periphery, there is a ring of fluid pushing up the epidermis. The crust extends, and at the end of some days is detached, exposing the sphacelated skin, which, somewhat later, separates and leaves a red granulating surface. The resemblance of these lesions to the preceding forms is noteworthy. In addition to the multiple, there is a single variety in which portions of the extremities may slough completely off. Bartholow describes a case where there was gangrene of the little finger, and no mention is made of bullæ. Boyd met with a case of gangrene of the great toe, and at least half-a-dozen cases of gangrene of the penis are reported by Fournier and others.

There is also a form of gangrene peculiar to the tropics. See **Phagedæna Tropica.**

CLASS III.

HÆMORRHAGIÆ—HÆMORRHAGES.

PURPURA.

Deriv.—πορφύρα, purple.

Synonyms.—Hæmorrhœa petechialis; *Fr.*, Purpura; *Ger.*, Purpura; Blutfleckenkrankheit.

Definition.—Hæmorrhage into the cutis due to disease.

PURPURA must be regarded as a symptom rather than a disease, the outcome of many pathological conditions, some of which are obvious enough, while others are so obscure as to baffle investigation for the present. Some authors have restricted the use of the term to those apparently spontaneous cases, in which the hæmorrhages may be the only obvious symptoms, and call those hæmorrhages of which the cause is known, symptomatic; but as our knowledge advances, the unknown group becomes smaller, and it is therefore more logical to consider purpura as a term synonymous with non-traumatic hæmorrhage into the skin or mucous membranes.

It is, however, necessary, for the sake of making the description clearer, to treat these so-called idiopathic hæmorrhages as definite varieties, which are divided into P. simplex, P. hæmorrhagica, P. rheumatica, and Hæmatidrosis.

Blood may be extravasated into the tissues, (1) between the layers of the epidermis, (2) into the papillæ and corium, (3) and, more rarely, into the sweat glands, hair follicles, and subcutaneous tissues.

The clinical aspect varies according to the position and extent of the extravasation, and the following terms are employed to describe the appearances thus produced:—

Petechiæ, or spots beneath the epidermis, round, oval, or irregular, from the size of a flea-bite mark up to half an inch or more. They are not raised above the level of the skin, are of some shade of purple, and do not alter on pressure by the finger.

Vibices, or streaks, are long in comparison to their width, from about an eighth to one inch in diameter.

Ecchymoses, or bruises are of any size and shape, and usually accompanied by swelling.

Ecchymomata, Hæmatomata, or blood tumours, due to the rupture of a comparatively large vessel, may be superficial or deep, and vary in extent, shape, and elevation above the surface.

Papules are formed when the effusion is round a hair follicle, either independently or as a complication of other eruptions, and the names **P. papulosa** or **lichen lividus** have been sometimes employed to designate such cases.

Hæmorrhagic Bullæ are formed when the effusion is between the layers of the epidermis, or hæmorrhage may take place into a previously formed bulla.

Hæmatidrosis, or bloody sweat, occurs when the blood has escaped into the sweat follicles or ducts.

Differences are produced also when the hæmorrhage occurs as a complication of other eruptions, as in herpes, pemphigus, urticaria, erythema exudativum, especially erythema nodosum, and ecthyma.

Petechiæ are much the most frequent of these lesions. When first formed, they vary in colour from a bright red to claret or deep purple, and as absorption takes place they change into the bluish, greenish-yellow, and brown tints of an ordinary bruise. They come anywhere, are never transitory, do not at any period disappear or alter by pressure, never increase in size except by a fresh hæmorrhage, and are visible after death.

Purpura Simplex. This may be taken as a type of the affections to which the title of purpura is often restricted. In it, apparently

spontaneous hæmorrhages make their appearance suddenly, often in the night, and generally without previous symptoms. In adults, the hæmorrhages, most frequently, come first upon the lower extremities, especially the flexor aspect of the thighs and calves, but almost any part may be attacked, and in children, I have seen them generally, appear first upon the neck and upper part of the back, and even in the mouth. The lesions are petechial, of any size, usually roundish or oval, but may be irregular, and in rare instances, circinate (Duhring, Stellwagon). They come in crops, are usually symmetrical, but occasionally unilateral, and give rise to no inconvenience,—indeed, the patient would be unconscious of them if he did not see them. The spots last until the usual changes, which occur during absorption have been gone through, but fresh crops of petechiæ continue to appear, for a period varying from a few days to a few weeks. In exceptional cases, the outbreak of purpura is preceded by lassitude, aching in the limbs, especially the calves, anorexia, and general malaise; but these symptoms are more common, though not invariably present, in the more severe forms of purpura.

Purpura Hæmorrhagica (land scurvy, or morbus maculosus Werlhoffii) may be regarded as an exaggerated P. simplex, and is often preceded, in addition to the above symptoms, by headache, great debility, and even convulsions. On the other hand, there may be no symptoms at all before the hæmorrhages, or P. simplex may develop into this form. The lesions present every variety of aspect; beginning upon the legs and lower part of the trunk, they rapidly involve, by successive crops, the whole of the body surface. Sooner or later, the hæmorrhages occur internally, especially from mucous membranes, and into the parenchyma of organs and various cavities, and epistaxis, hæmoptysis, hæmatemesis, or hæmaturia may ensue, so profusely as to rapidly undermine the strength of the patient, and lead to speedy death by exhaustion. The fatal event may also be produced by the position of the hæmorrhage, *e.g.*, in the meninges, or brain substance. On the other hand, the bleeding may be more moderate and continue for a few weeks, or may cease altogether in about a fortnight, either abruptly or gradually, the general health being affected in proportion to the amount of the hæmorrhage.

There are also cases of purpura with elevation of temperature,

or P. febrilis, but probably they are not all of the same nature, as in some the fever precedes, and in others, follows the purpura ; in the last case, possibly due to the absorption process, and where the fever occurs in the later stage of P. hæmorrhagica, Immerman suggests that it may be due to the anæmia.

Peliosis, or **Purpura Rheumatica**, is described with the exudative erythemata, with which it agrees in all its characters, except the hæmorrhages, which have in rare instances developed into P. hæmorrhagica. See also *Erythema Hæmorrhagicum.*

Hæmatidrosis is described with diseases of the sweat glands.

Etiology.—Purpura occurs in both sexes and at all ages. The causes of cutaneous hæmorrhages are very numerous, and may be classified under five heads :—

1. *Certain blood alterations.* — (*a*) Specific fevers, especially typhus, variola hæmorrhagica, and epidemic cerebro-spinal meningitis ; less often, typhoid, measles, scarlatina, acute septicæmia, pyæmia, and syphilis, both congenital and acquired ; (*b*) snake-poison ; (*c*) some drugs, as, iodine, iodide of potassium, quinine, salicylic acid, copaiba, belladonna, ergot of rye, chloral, chloroform inhalation in the early stage, benzoic acid inhalation, phosphorus, mercury, and the mineral acids. Purpura is produced by drugs such as the above, only where there is an idiosyncrasy in the individual ; (*d*) certain general diseases, as scurvy, hæmophilia, leucocythemia, pernicious and other anæmias, rickets (scurvy-rickets), and some say from excess of water, chloride of sodium, or a tendency to the precipitation of fibrin causing thrombosis—the last three are of very doubtful existence ; (*e*) cachexiæ, as tuberculosis, cancer, and sarcoma.

2. Many diseases of the *viscera*, including some of those of the spleen, liver (especially cirrhosis and chronic jaundice from any cause), intestines, kidney (especially chronic Bright's disease), lungs, and cardio-vascular system, acting probably and mainly through the sympathetic.

3. *Want of support to the vessels*, due to (*a*) relaxation of the tissues, as in old age (**P. senilis**), getting up after long illnesses, parturition, etc. ; (*b*) the existence of other eruptions, especially bullæ, wheals, etc. ; (*c*) diminished atmospheric pressure.

4. *Sudden changes in the circulation*, as in purpura of the newborn (**P. neonatorum**). Visceral hæmorrhages are very frequent in still-born infants, Herbert Spencer* has shown, but they are chiefly due to external mechanical causes, and are not true purpura.

5. *Diseases of the nervous system.*—(*a*) Functional, as in connection with shock, grief, epilepsy, angina pectoris, and other neuralgias; (*b*) organic, as in tubercular meningitis, plugging of cerebral sinuses and some other serious lesions, also in posterior myelitis, injuries to nerves, etc. Among all this long list of causes, in only a few, viz., the first three specific fevers, and scurvy, hæmophilia, and snake-poisoning, can cutaneous extravasations be considered a common event. And as they are only a part of many other hæmorrhages and lesions, they are not usually spoken of as purpura. In most of the others it is quite exceptional, while in a great number, perhaps the majority, of cases of purpura, the cause is more or less obscure.

Pathology.—Blood may escape from the vessels by rupture, diapedesis, or by transudation of blood-colouring matter only, but there is no doubt that, in the majority of cases, rupture of the vessel takes place. This may occur from :—

(*a*) *Increase of blood pressure* behind the point of rupture, especially if suddenly produced. The commonest cause of this is some obstruction in a vessel, produced by (1) stasis, either from inflammation in the part, or from some external pressure; (2) thrombosis or embolism, which may be due to an ordinary blood clot, masses of leucocytes, as in leucocythemia according to Ollivier and Ranvier, sarcoma cells, hæmatin, fibrin, colonies of bacteria or micrococci, such as Cohnheim, Cornil, Watson Cheyne, and Letzerich† have found, or masses of endothelial cells from desquamative arteritis, as described by Hayem. The extravasations produced by all these blocking particles would thus be hæmorrhagic infarcts. Extreme contraction of the vessels on the one hand, or dilatation on the other, either from active or passive congestion, may also lead to rupture of vessels.

(*b*) *Changes in the vascular walls*, from inflammation or degeneration, *e.g.*, lardaceous (Wilson Fox), acting either by weakening the

* *Trans. Obst. Soc.*, vol. xxxiii., 1891.

† *Ætiol. u. die Kenntniss. der Purp. Hæm.*, with plate (Vogel: Leipzig, 1889). He claims to have found a specific bacillus.

resistance of the vessel wall or by favouring obstruction ; want of support to the vessels being a predisposing condition, and the position of the lesions being often determined by gravitation.

(*c*) *Changes in the nervous system* acting by producing (*a*) alterations in the calibre of the vessels, and (*b*) alterations in the nutrition of the vessel wall. Schwimmer thinks that purpura is always a tropho-neurosis, but this is overstating the case. That trophic defects may ensue very rapidly is shown by Weir Mitchell's experiments with snake-poison, in which contact of the poison with the vessels produced weakening of the vessel walls, and rupture in a few minutes, which was general in distribution, when the poison was absorbed. The influence of the sympathetic has been shown, by the destruction of the sympathetic ganglion in the abdomen of a frog, being followed by hæmorrhages in the lower limbs ; and Hale White* found acute inflammation of the semi-lunar and cervical sympathetic ganglia in a case of purpura hæmorrhagica.

It is only through the influence of the nervous system that we can explain such cases as Mitchell's, of neuralgia with extravasations at the point of greatest pain, the purpura recurring with the pain repeatedly ; those following injuries to nerves, in the area of the nerve affected, cases occurring after severe chills, those in association with ague, and in the early stage of chloroform inhalation, even when there has been no struggling (Morel-Lavallée). It is, however, generally impossible to determine how much is vaso-motor and how much is trophic, or whether there is a combination of the two. The same difficulty exists also for other pathological conditions producing purpura. It is not always possible to say into which category, any particular case should be placed, either, because more than one theory would fit the facts, or, from there being a combination of causes present.

The pathological changes found in the blood have been so diverse, and are individually founded on so few observations, and those open to fallacy, that they need not be discussed further.

Diagnosis.—P. simplex has to be distinguished sometimes from *erythema exudativum* and from flea-bites. The fact that the purpura spot is unaltered by pressure, distinguishes it at once from ordinary erythema exudativum, which it only resembles when the purpura is of a brighter colour than usual. The later stage of *flea and bug bites* is exactly like the petechiæ of disease ; but the bites

* *Med. Chir. Trans.*, vol. lxviii. (1885), p. 231.

do not come suddenly in crops, have a ring of congestion round them at the commencement, and a central punctum is discernible for the first few days.

Purpura hæmorrhagica may be confused with *scurvy*, but absence of vegetables in the dietary is never an etiological factor in P. hæmorrhagica, while the distinctive premonitory symptoms—great prostration, frequent faintings, swelling of the gums, loose teeth, and the condition of brawny swelling of the limbs—are always present in a well-marked case of scurvy. The hæmorrhages of *hæmophilia*, *leucocythemia*, and *pernicious anæmia* are distinguishable from P. hæmorrhagica by the symptoms of those conditions being associated with the hæmorrhages.

Prognosis.—The majority of cases terminate favourably, but the duration is very variable, and, as we have nothing to guide us as to what course the case will pursue, even an apparently P. simplex sometimes passing without assignable cause into P. hæmorrhagica, it is well to be guarded in prophesying the termination.

Treatment.—Rest in the horizontal position is one of the most important precautions, and should be rigorously insisted upon in all cases, except the slightest. In P. hæmorrhagica, every effort should be made to support the strength from the first, by nourishment in an easily assimilable form, but diet has no direct influence upon the hæmorrhage. The drugs upon which most reliance can be placed are turpentine internally and by inhalation, the liquid extract of ergot, and subcutaneous injections of ergotine, and of these, turpentine is by far the best. Poulet strongly advocates nitrate of silver gr. $\frac{1}{8}$ to gr. $\frac{1}{6}$, made into a pill with breadcrumb, and taken three times a day, while perchloride of iron, quinine, and general astringents have their advocates. Ice, internally and externally, is sometimes useful, and local astringents may be employed in severe cases; a four per cent. solution of hydrochlorate of cocaine painted on stopped a severe hæmorrhage from the gums when other hæmostatics had failed. Shand of Glasgow records a case in the *Lancet* of July 9th, 1879, where faradisation of the whole surface seemed to have been effectual. From what we already know of its pathology, it is not surprising that all remedies fail in some cases. Where hæmorrhages are due to a general condition like scurvy, the treatment for such a condition would be demanded.

Slight cases require no treatment.

CLASS IV.

HYPERTROPHIÆ—HYPERTROPHIES.

This group includes all kinds of overgrowth, generally produced by the increased number of cell elements of the whole, or any part, or combination of parts, of the skin structures.

Thus, the epidermis may be affected exclusively, as in callosities; while in a wart, or other papilloma, the papillæ are involved as well; or only the pigment of the epidermis may be increased, as in chloasma or lentigo; or again, there may be increased growth of hair, as in hirsuties; or of nail, as in onychogryphosis; or of all the tissues, as in elephantiasis. This overgrowth generally takes place without any signs of inflammatory effusion, but in scleroderma, there is effusion of cells round the vessels, though even then, it is not demonstrably inflammatory; whilst in elephantiasis, inflammation plays the chief part in its production.

ICHTHYOSIS.

Deriv.—*ἰχθύα*, fish skin, from *ἰχθύς*, fish.

Synonyms.—Xeroderma ichthyoides; Ichthyosis vera; Fish-skin disease; *Fr.*, Ichthyose; *Ger.*, Fischschuppenausschlag.

Definition.—A disease of development with deficient skin secretions, characterised by extreme dryness of the skin, and more or less development of scales, epidermal plates, and warty-looking growths.

Varieties.—Ichthyosis in one or other of its forms is a fairly common disease, but varies immensely in its development. Three clinical types may be recognised; the first two are general, and are called xeroderma and ichthyosis simplex; the third, ichthyosis

hystrix or hystricismus, is more or less localised. All the varieties are of congenital origin, though rarely recognisable till some months after birth; there is also an acquired condition, which in appearance is indistinguishable from the others, but it is always secondary and seldom general.

The two general forms are not really distinct, the milder being connected by every gradation with the more severe, but their separate consideration is convenient for clinical description.

Symptoms.—**Xeroderma** is the commonest and mildest form. In a marked case, the skin is rough, dry, and dirty-looking, with the natural lines more marked than usual, from the thickening of the epidermis. The roughness is produced by slight furfuraceous scaliness, and also by the prominence of the hair follicles, produced by the condition known as **keratosis pilaris**, which is always present, often in a high degree, on the extensor surface of the limbs and trunk. It may be present in so slight a degree that the patient is not aware of it, but such persons do not perspire, and their skin "chaps" and is more vulnerable to slight irritation.

In **ichthyosis simplex**, the whole surface has a tesselated appearance, from being covered with large angular, dirty-white, finely corrugated, papery scales, which are adherent, and therefore slightly depressed in the centre (**I. scutellata** of Schönlein), while the edges are detached, transparent, and shining (**I. nacrée** of Alibert, or **I. nitida**). These and the following variations, are often most characteristically seen on the leg near the knee and ankle, the upper part being often very glistening, or even pearly white, while the thick scales are seen lower down. In still higher grades, the scales adhere together to form thin plates, and being of a greenish tint, look something like a serpent's skin (**I. serpentina**); when there are still thicker plates, the appearance of a crocodile hide is produced (**I. sauroderma**). The older the plates the darker they become, so that they may vary from olive green to black (**I. nigricans**). While all these fanciful names are to be met with in literature, and are therefore explained, their use should be avoided, as they only produce confusion. These extreme conditions are rarely extensive, and usually only occupy certain regions, a milder form prevailing elsewhere; for although a general disease, it is unequal in its severity in different regions, and is always more developed on the extensor surfaces, especially over the tips of the elbows and knees, where it may

attain to the higher condition of warty growths or plates, even when the disease is moderate elsewhere. On the other hand, the flexures are comparatively free, often appearing quite normal; the limbs are worse than the trunk, and the legs than the arms; the palms and soles are not much affected, but are harder and smoother from the absence of the small natural lines. The hair is dry, harsh, and dull-looking, and the scalp branny; the nails may be pitted and brittle; while the face, though relatively less affected, is rough and very often eczematous. In bad cases, there may be ectropion from the contraction of the dry skin, and atrophy of the lobes of the ears. Itching is frequently experienced, especially when the clothes are taken off, but it is never severe unless eczema is present, to which the ichthyotic skin is very liable when exposed to cold, and also to painful fissures or "chaps" from the same cause. The fully developed ichthyotic skin does not perspire sensibly, but some sweat may be seen in the flexures, especially the axillæ, on exertion or in very hot weather, and occasionally on the face, palms, and soles. In one of my cases, there was constant hyperidrosis on the palms and soles, with occasionally moisture on the back of the hands and forehead, while there was a high degree of ichthyosis on the rest of the body. The patients feel much relieved by any perspiration, and their condition is notably ameliorated in the summer.

The sebaceous secretion is also deficient, though not wholly absent, for the horns and plates have often a greasy feel, and æther will dissolve out a good deal of fluid fat and stearine. Though the patients are always thin, the general health is good as a rule. Asthma is said to be a frequent concomitant, though very few instances of such an association have fallen under my notice. The rare condition sometimes called **ichthyosis palmæ** is described under tylosis. Ordinarily the palms and soles in ichthyosis are particularly dry and smooth, and while the major natural lines are deepened, the minor ones are absent.

Acquired ichthyosis is rare, especially generalised cases. In one of my patients, it came on when seventy-six years old after a period of poor living, became universal, and remained without change until his death, six years later; he would have served as a typical ichthyosis of the ordinary form. This patient sweated freely until the disease came on. Another man, æt. thirty-six, with marked ichthyosis all over, except the face and upper part of the

neck, which sweated freely, stated that his skin was quite smooth up to the age of thirteen, when it became rough after scarlet fever. Tommasoli's case began at the age of seventeen years. Mapother's case was a woman of forty-two; the disease came on while suckling; the axillæ, groins, and breasts perspired, but there were horny plates on the limbs, and the general surface was xerodermatous. A few other cases are scattered through literature. Somewhat more common are local ichthyotic developments, especially in connection with neuritis from injury or disease; and Ballet and Dulil have observed it in tabetics.

Ichthyosis Hystrix is much rarer, and differs in so many ways from the other congenital forms, that many regard it as a totally different affection, but there are connecting links with the commoner variety. It is never general, though it may be widely distributed, and occasionally certain parts may be in the hystrix condition, while the rest of the skin is xerodermatous, but, in the majority of cases, the intermediate skin is perfectly healthy; moreover, the disease is seldom symmetrical, is often unilateral, and sometimes sharply limited on the trunk by the median line, while it is commonly distributed in the course of recognisable cutaneous nerves, and hence it is usual to see it in lines running longitudinally on the limbs and transversely on the body. The face is rarely affected, or only in a minor degree. In other cases, the nerve distribution cannot be traced; indeed, Unna contends that the nerves have nothing to do with it, and that the embryonic lines of fissure are the probable key to the distribution.

The lesions vary from small pin's-point-sized, papillary growths covered with a horny cap, which forms a nail-head-like prominence on the skin, up to warty, dark greenish, vertically striated, horny masses, projecting half an inch or more above the surface, with a wide base, and truncated, conical shape, like limpet-shells. When the horny part is soaked or pulled off, hypertrophied papillæ are brought into view. Inconvenience is only experienced when the growths are in awkward positions, such as the palms and soles, on which one or more bands are common, or when the horny tops are torn off too roughly by catching in the clothes, etc.; but they are often shed spontaneously without any pain.

The extreme instances of widespread horny growths are sometimes exhibited at shows as "Porcupine men," as in the well-

known Lambert family, in which it existed in nine males of three generations. The warty projections of the first affected were cast off periodically. The minor degree,* where only a single nerve tract is involved, is reported from time to time under various names, according to the fancy of the author, *e.g.*, nævus verrucosus, nævus papillaris, nævus neuroticus unius lateris, nerve nævus, neuropathic papilloma, papilloma neuroticum, etc. This form is rarely hereditary.

Two instances of mental weakness associated with very extensive cases have fallen under my notice, and other congenital defects are occasionally observed. Of these, defects of the ear are the most frequent. In an unique unilateral case of Dr. Church, the mucous membrane of the cheek, soft palate, and tongue was affected on the same side with papillary growths. But for this exception, it might be said that ichthyosis never affected the mucous membranes, the so-called "**ichthyosis linguæ**" being an acquired affection of a totally different origin.

Course.—Although, as already said, it is congenital in its origin, the ordinary run of cases do not exhibit noticeable abnormalities in the skin, until some weeks or months after birth, and it is not until the second year, or later, that it becomes very conspicuous. In some of the worst cases, however, some defects are noticed at birth (**I. congenita**). Either after the removal of the vernix caseosa, which may be very thick, or, as the skin dries, it is noticeably red, smooth, and shining at first, but soon becomes dry and rough; or, more rarely, actual plates are present in the most severe cases, constituting the so-called "**Harlequin fœtus**," of which there are specimens in Guy's Hospital, the London Hospital, and the Royal College of Surgeons' Museum. The whole surface of the body is thickly covered with fatty epidermic plates, some a sixteenth of an inch in thickness, which are broken up by horizontal and vertical fissures, and arranged transversely to the axis of the body, like a loosely built stone wall. These fissures, after birth, may extend down into the corium, and produce much pain on movement. Owing to the stiffness of the skin, and also often from its contraction, the eyes cannot

* An interesting series of illustrated cases was published by Stephen Mackenzie in the *Illust. Med. News*, November 3rd, 1888, p. 123. See also Phillipson's two cases setting forth Unna's view, *Monatsh. f. prak. Derm.*, vol. xi., 1890.

be completely opened or shut, and there may be ectropion; the lips are too stiff to permit of sucking, and are often everted; the nose and ears are atrophied; the toes are contracted and cramped; and the child, if not born dead, soon dies from loss of temperature and starvation.

Where the disease is less severe, the child may survive for some time. In February 1890, a male child, one month old, was admitted under me, at the East London Hospital for Children, with ichthyosis. The condition was present at birth. The child was fairly well nourished and well formed, except the ears. The whole skin was dry and hard, as if painted with a thick coating of collodion, which was broken up into large thin plates by deep sulci, which followed the natural folds. The surface of the plates was quite smooth and parchment-like. The child lived three months, but its vitality was low all along. Hallopeau had a similar case. Plate ix. of Hebra's *Atlas* is also of this type, and so are two cases of G. T. Elliot of New York.

All these cases are considered by Hebra and Kaposi to be due to **general seborrhœa**, and not to ichthyosis (I. sebacea). With this I cannot agree. Mr. Sutton* was kind enough to give me some skin from his case, and I found enormous thickening of the horny layers (mixed with fat), which dipped down into the interpapillary part of the rete, just as in ichthyosis hystrix. This part of the rete exhibited considerable increase, both vertically and laterally, so that the papillæ were proportionately elongated and narrowed, and almost filled with vessels, which were dilated both here and at the upper part of the horizontal layer. In the scalp, the hairs went straight at first, but were lost eventually in the horny plates. The sebaceous glands were notably atrophied, some only consisting of a single narrow acinus, or a very small gland with four or five acini. There were very few sweat glands in this case, but Caspary in his case described them as large and numerous. The anatomy certainly resembles that of ichthyosis, and I consider it a true ichthyosis congenita, due to a defect in the keratinising process in the rete.

* Shown at the Med. Chir. Soc., March 8th, 1886, and published in *Transactions* of that year, vol. lxix., p. 291, with coloured plate and bibliography.

I. hystrix * develops quite early, as a rule, six weeks or two months being a common period for it to be first noticed, but it too may be present at birth. The ordinary form of the disease tends on the whole to get worse, rather than better, as the patient grows up, though there may be some remissions, according to the season and to the amount of attention given to the skin. After full adult age is reached, some improvement appears to take place in cases of moderate severity.

Etiology.—The disease is congenital, and in many cases, but by no means in all, hereditary. The heredity may be direct, may skip a generation, or may be through a lateral branch. Sometimes only one child in a large family will have it, at another several children: even in the case of the "Harlequin fœtus," two, and even three infants have been born of one mother with this deformity. The disease often keeps to one sex in a family, which may be either of the same or of the opposite sex to the affected parent. Thus, I have met with a family of seven girls and three boys, the boys being the youngest, in which the disease affected four of the girls alternately, beginning at the eldest, and also the eldest boy, the father having the same condition. Kaposi records the instance of an ichthyotic mother who had all five sons ichthyotic, while her three daughters were free. This tendency to attack only one sex in a family is also seen in xeroderma pigmentosum, a totally different disease; but taken as a whole, both sexes are equally liable to ichthyosis, and no class is exempt. There is no other known cause for the congenital affection, but the neuritic and tabetic origin of the local acquired form has been alluded to; while one of my general acquired cases was due to semi-starvation. Epidermal and papillary hypertrophy is also seen sometimes in chronic inflammatory conditions, but these are referable to elephantiasis arabum.

Pathology and Morbid Anatomy.—There is evidently some congenital defect in the development of the cutis, chiefly of the epidermal layer. Though this is saying but little, at present we are unable to go further.

* Duckworth, in *St. Bart.'s Rep.* for 1873, p. 108, reports a case of I. hystrix, in which there were red spots at birth, and in three days there was "heaping up" upon them. Hutchinson, in his *Lectures on Clinical Surgery*, vol. i., p. 161, relates a case where there were plates at birth, and the child survived.

Anatomy.—The morbid anatomy of ichthyosis simplex has not yet been made out; but that of ichthyosis hystrix has been investigated by Kaposi and myself. Kaposi's observations are quoted in every text-book, so I will give my own only. They were made on some warty-looking growths upon the flexor surface of the forearm, from a highly developed case.* The papillæ and their vessels were much enlarged, the Malpighian cells adjacent to the papillæ were normal, but, instead of the layers of intermediate cells, which in health fill, or, so to speak, level up, the interpapillary spaces, and so form a nearly plane surface, on which the horny layer rests, the strata of horny cells dipped deeply down into the interpapillary spaces, so that the hyperplastic corneous layer followed the outline of the papillary layer, with a

Fig. 22.—Ichthyosis hystrix. × 120.

The horn has fallen off in preparing the specimen, but the horny layers can be seen at *a* dipping down into the interpapillary part of the rete, which goes deeper than natural into the corium and produces enlargement of the papillæ.

comparatively thin layer of rete cells intervening. The horny cap consisted of closely adherent, stratified layers, with large spaces interspersed here and there. Each of the vertical fibres sprang from a separate papilla. This description differs from Kaposi's, who figures the rete as almost unaltered in its outline. Some sections did not show this dipping down of the horny layer to so great an extent as others, and so approached the condition, which Rindfleisch describes as appertaining to ordinary warts, and which he thinks distinguishes them from the ichthyosis hystrix condition; but this is only approximately true, as the horny layer in many warts does to some extent follow the outline of the papillary layer.

Diagnosis.—The diagnosis presents no difficulties.

* *Clin. Soc. Trans.*, vol. xii., p. 181, with plates.

The disease dating back from a few months after birth; the dry, rough, dirty-looking, deeply-furrowed skin of xeroderma; the scales, plates, and the general distribution of I. simplex, and the warty growths and nerve distribution of I. hystrix, are so characteristic as to leave no room for error, and the date of its onset will also distinguish it from those secondary local and general conditions which resemble the congenital cases. When, however, extensive eczema complicates xeroderma, there is a great resemblance to *prurigo*, the more so as it also commences in the first years of life; but the diagnosis between these diseases has been given with prurigo.

Prognosis.—The prognosis is decidedly bad for its curability, but temporary amelioration can always be afforded in ichthyosis simplex; and if the patient will take the daily trouble, the skin can be kept supple and free from discomfort. In very mild cases, steady perseverance for years, with judicious treatment, has effected a cure, and Hebra mentions a case which got well after variola; a congenital case of Elliot got spontaneously well in some parts. Ichthyosis hystrix is very hopeless as a rule, but I have produced a permanent removal of the growths where the development has not been very great.

Treatment.—This must be directed to removing the scales, and making and keeping the skin pliable. The first indication is best fulfilled by alkaline and bran baths, with friction while in the bath, preceded in bad cases by soft-soap inunctions; the removal of the scales must be followed by applications of glycerine ointment or lotions, and animal, vegetable, or petroleum fats. Almost any fat will do, such as lanolin, lard, cold-cream, neat's-foot, olive, and almond oils; but cod-liver oil is too disagreeable, though very effectual.

Kaposi speaks very strongly in favour of a 5 per cent. naphthol ointment in conjunction with naphthol soap. Whichever is selected, should be well rubbed in twice a day at first, but glycerine lotion will be found the most convenient application for the face and hands, in the strength of one to ten. Steady employment of these applications will soon render the skin quite smooth and supple, and the patient will seem to be quite cured; but this state can only be maintained by inunctions two or three times a week, and frequent baths, or else the roughness very soon returns, and only requires time to resume its former severity. Eczema, as

a complication, requires treatment appropriate to that condition; callosities can be softened by strong potash lotions (one to two), or continuous applications of soft soap, or removed by salicylic acid plaster. The larger growths of I. hystrix should only be interfered with if they are in inconvenient positions, and can then be excised or scraped with a sharp spoon. The smaller papillary growths may be removed by the continuous application of tar ointment, and though many of them return, some will be permanently removed. A more pleasant application, and one which has been more successful than tar in my hands, is to paint the growths, after removing the horny caps, with a saturated solution of salicylic acid in alcohol. In this way I have got rid of large areas of minor growths. Internal treatment in all forms is absolutely useless.

KERATOSIS PILARIS.

Synonyms.—Pityriasis pilaris; Lichen pilaris.

Definition.—An accumulation of horny cells, which plug the orifice of the hair follicles, and thus form small papules.

This disease is still called lichen pilaris by some authors, but it differs from the lichen class in not being of inflammatory origin.

Symptoms.—It consists of pin's-head-sized convex papules of the same colour as the normal skin, or of greyish or blackish hue from adherent dirt; each of the papules is formed at the orifice of the hair follicle, and can be completely picked out by the nail, leaving a depression. Sometimes the hair pierces the papule, but more frequently it is coiled within or broken off at the surface, showing only a dark dot. The adjacent skin is normal in colour, but often xerodermatous, or even ichthyotic, and this, with the hard papules, produces a very rough, nutmeg-grater sensation.

It occurs chiefly on the extensor aspect of the limbs, especially the arms and thighs, and occasionally on the trunk; but it varies in extent and development, sometimes being scarcely noticeable, at others very conspicuous, from the number and size of the papules.

Etiology.—It is most common in those who seldom or never take baths, but it may occur in others from the time of puberty and onwards, and is always present in a high degree in the ichthyotic.

Diagnosis.—It is in many respects like a late stage of *true* lichen pilaris, but it lacks the central horny spine of that affection, is essentially chronic, and there is no inflammation at the commencement. It closely resembles *cutis anserina*, but that is a transitory condition, lasting very little longer than the cold or fear which produced it, and its papule cannot be removed by the nail.

From *lichen scrofulosus*, and the *papular syphilide* with similar characters, it may be distinguished by the positions, the greater prominence and hardness of the papules, and by the constitutional condition present with these two inflammatory conditions.

Treatment.—This is much the same as that of xeroderma, viz., alkaline and vapour baths, soft-soap inunctions, followed by warm baths; or the inunction of oily substances of various kinds may be rubbed in, in the same way as is described under ichthyosis.

PAPILLOMA OF THE SKIN.*

Corns, warts, horns, and some nævi, are all considered by general pathologists as examples of "papilloma of the skin"; and various kinds of tumours, such as sarcoma, carcinoma, epithelioma, and fibroma, as well as morbid processes like syphilis, lupus, eczema, and sycosis, are liable to develop papillary growths. An attempt has, however, been made by Neumann, Duhring, and some other dermatologists to give the term a special meaning, on the strength of certain cases which have been reported as inflammatory skin papilloma by Weil and Roser, and under other names by various writers. It consists of a raised cauliflower excrescence, very like verruca acuminata, already described, varying in size, with fissures and sinuses, which secrete a yellowish puriform and sometimes offensive fluid, occurring at any part of the body and at any time of life. I once saw a patch of this kind on the hip

* *Literature.*—Hardaway, "Clinical Study of Papilloma Cutis," *Amer. Arch. of Derm.*, vol. vi. (1880), p. 387,—a good general review of the whole subject. Morrow, "Tuberculosis Papillomatosa Cutis," *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vi. (1888), pp. 361 and 401, well illustrated, gives an account of very extensive primary growth, and discusses the question of papilloma. "Das entzündliche Haut-Papilloma," Roser, *Arch. der in Heilkunde*, 1866. Weil in *Viertelj. f. Derm. u. Syph.*, 1874, p. 37 with coloured plate.

of a tubercular man of twenty-five, about one inch in diameter, projecting about one-fourth of an inch, with a scabbed covering, and hypertrophied, readily bleeding papillæ. There was no history of previous lesions, but Hardaway thinks such growths are always secondary to ulcers or other lesions, and calls them all symptomatic papillomata. Beigel's * oft-quoted case of **papilloma area elevatum** in a child æt. twelve months, suffering from convulsions, was evidently a case of bromide rash, in which the appearance of the papilloma is not infrequently produced when the scab is removed from the larger lesions, and they are also sometimes followed by papillary hypertrophy. The term "neuropathic papilloma" is often applied to the band form of warty growths, which really belong to the same category as ichthyosis hystrix.

VERRUCA (A wart).

Synonyms.—Wart ; *Fr.*, Verrue ; *Ger.*, Warze.

Definition.—A small papillary growth variable in size, shape, and consistency.

Warts are very variable in aspect and development, and have names accordingly, which are convenient for description.

Verruca Vulgaris is the form so common on the hands, especially in young people, where it forms a hemp-seed to a split-pea-sized, hard, sessile, slightly conical elevation, with truncated top.

The upper and greater visible portion of it is horny, and the surface is smooth, or studded with minute, moniliform elevations, formed by the close aggregation of hypertrophied, horny-capped papillæ, which, by unequal growth, often break up the whole tumour into irregular craggy lobulations. When first formed, they are the normal colour of the skin, but the older and rougher they are, the more discoloured they become, and are then some shade of yellow, brown, green, or even black. They are single or multiple, isolated or aggregated into close or loose irregular groups, and, while generally seen on the hands, may come anywhere.

Verruca Plana is flat and very slightly elevated, from a pin's

* *Path. Trans.*, vol. xx., p. 414.

head to half an inch in diameter, sometimes single, but often very numerous.

In young people, they are generally quite small, and occur chiefly on the face, especially the forehead, and, to a less degree, on the backs of the hands; they may or may not be slightly pigmented, are both disseminated and in irregular groups, and occasionally have a unilateral distribution. They are often quite square, and bear a very close resemblance to the papules of lichen planus in shape and colour; but lichen planus is rare on the face and scalp, where these lesions chiefly appear. Darier's* histological examination of them showed that the chief changes were hypertrophy of all the layers of the epidermis, with elongation of the papillæ.

In old people, they are seen chiefly on the back and arms, are generally pigmented from brown to black (**verruca senilis, keratosis pigmentosa**), associated with other signs of senile degeneration of the skin, and may itch severely. Although usually flat, they are sometimes considerably raised above the surface, and obviously papillomatous.

They are said to be very numerous sometimes, in cancerous patients, and I have seen a very copious crop on the chest, associated with acute eczema, in an elderly woman.

These warts have been histologically investigated by Neumann, Balzer, Handford, Pollitzer,* etc. The last-named wishes to revert to the old term of **seborrhœic wart.** He has examined eight warts carefully, and dismisses Neumann's and Balzer's descriptions as fanciful. The discoloration he attributes to the concretion of dirt and fatty scales. The stratum corneum is slightly, and the rete considerably, thickened. Epithelioid cells are arranged in groups and lines among the connective-tissue bundles of the corium throughout its whole depth; but the greatest peculiarity, he thinks, is the infiltration of fat in the epithelial cells, from the rete to the coil glands inclusively. He regards the warts as growths from "misplaced" embryonic cells.

Verruca Digitata. The hypertrophied papillæ are here separated nearly or quite down to the base, and form finger-like elevations with a horny cap, the rest being comparatively soft; they are

* *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 619; abs. *Brit. Jour. Derm.*, vol. i. (1888), p. 82.

† *Brit. Jour. Derm.*, vol. ii. (1890), p. 199, with plate. He quotes the descriptions of the other observers.

aggregated into small groups, or occasionally large patches, and occur chiefly on the scalp.

Verruca Filiformis. These are a small variety of the previous form; they are of small diameter, or even filiform, with pointed end, not more than one-eighth of an inch long, and occur singly, or in small groups on the face, especially the eyelids, and on the neck.

Verruca or Condyloma Acuminata. *Synonyms.*—Moist or venereal wart; *Fr.*, Végétations dermiques; *Ger.*, Spitzenwarze; Spitzen-condyloma.

The most common position for these is about the anus, perinæum, in the sulcus, behind or on the glans penis, between the labia, and in the vagina, less frequently in the axillæ, under the mammæ when they overhang, in the umbilicus, round the mouth, or on the toes. When they are on the free surface, where they are dry, they are the colour of the normal skin; but in moist situations, where they are subject to heat, maceration, and friction, they are covered with a whitish or yellowish, puriform secretion, which soon becomes highly offensive. They are made up of closely aggregated projections, which may be acuminate, tufted, or club-shaped, sessile or pedunculated, protruding much or little; they grow luxuriantly, increasing by peripheral additions, and according to their aggregation, subjection to pressure, luxuriance of growth, and the liveliness of the imagination of the describer, imitate various vegetable productions, and get such names as cauliflower, frambœsia, fungous, mulberry or racemose, cockscomb, etc., appended to them. They may grow rapidly or slowly, and though parts of them may atrophy, on the whole they increase, exhibiting less tendency to spontaneous disappearance than is generally exhibited by other forms of wart. The large rapidly growing warts seen in pregnant women are an exception, as they generally disappear spontaneously after parturition.

Etiology.—There is little fact, but much theory, with regard to their etiology. All ages and both sexes are liable to them, some forms being more common in the young than in the old. With regard to the moist form, or verruca acuminata of mucous membranes, the evidence that they are produced by irritating discharges, especially that of gonorrhœa, is pretty conclusive; constipation is

very often present, but for the rest we know nothing. The popular opinion, that they are contagious, or at least auto-inoculable, has not been quite proved, though Kranz thought he had been successful in inoculation with the pointed kind; but Petter's more exhaustive and careful investigations and experiments were negative; Payne's personal experience is the best evidence yet; he scraped away a wart with his thumb nail and one developed under the nail, and others followed on the back of the thumb. Moreover, there are some facts in the distribution and development of ordinary warts, as well as their occurrence in several members of a family, which tend to prove the popular belief; and at all events in these days of micro-organisms the idea should not be pooh-poohed without further investigation; indeed, Colrat, Cornil, Isquierdo, Kühnemann, etc., have found micro-organisms, both cocci and bacilli, and although it is not yet proved that they are the morbific agents, it is highly probable that they are so.

Anatomy.—The anatomy has been investigated by Bärensprung,* Virchow, and others with general agreement. Diverse as they are, they are all formed on the same principle, the shape and size being determined by a central core of connective tissue, containing, and fed by, a vascular loop; over this, is an epidermic covering of varying thickness and hornification. The previous existence of papillæ is not essential, a connective tissue base being all that is required. The pointed forms differ from the others, only in having more connective tissue, in being highly vascular, and while the rete cells are highly developed, the horny cells are comparatively scanty.

Kühnemann,† from more recent observations, explains the matter differently. He says the process is primarily in the epidermis, the changes in the form and size of the papillæ and the enlarged vessels in the papillæ and cutis being secondary. The change commences in the prickle layer, which grows upwards and downwards. Then the other two layers alter; the granular layer is thickened, and this is the most conspicuous change when a wart is first examined; the horny layer is also enormously hypertrophied, but in consequence of defective keratinisation the structure is looser and the nuclei are still stainable. This is the most important change, and he would place warts therefore in Auspitz's group of parakeratoses. He found numerous cocci and a few short rods in the prickle layer, but was unable to prove their significance.

Treatment.—Until recently, local treatment alone has been employed, but Colrat of Lyons, confirmed by other French

* *Die krankhaften Geschwülste*, p. 335.

† *Brit. Jour. Derm.*, vol. i. (1889), p. 328, illustrated with critical review of previous observations.

physicians, has reported that repeated doses of sulphate of magnesia, 2 or 3 gr. in the cases of children, ʒss for adults, three times a day, cause the wart to drop off. I can confirm the truth of this from my own experience in several cases, though, of course, it is not invariably successful. Enough sulphate of magnesia to produce two or three evacuations a day should be given, and it may be combined with the acid infusion of roses, or a carminative. In some cases, I have thought full doses of nitro-hydrochloric acids have been of service. The tincture of thuya occidentalis (arbor vitæ), in doses of thirty to sixty minims two or three times, is said to be curative, but I have no experience of it. Paul Müller of Hamburg, and Pullin, are strong advocates for liq. arsenical. ɱij, three times a day for an adult, and a quarter of a drop for a child.

The *local treatment* varies according to the kind and locality. Common warts may be removed by the repeated application of the nitrate of silver stick, or preferably a saturated solution of chromic acid, taking off the black crust every few days; much time may be saved by applying salicylic acid plaster until the horny part is softened and removable, and then using chromic acid. For numerous small flat warts, a saturated solution of salicylic acid in alcohol, repeatedly applied, is sometimes quite successful; more obstinate cases may require the strong acid nitrate of mercury, but these and the other caustics stain the part, which is objectionable on the face, so that salicylic acid is always worth trying, and if this fails, glacial acetic acid may be carefully applied every two or three days, or, as Payne prefers, a weak acid two or three times a day. Caustic potash, if used on common warts, should be limited to the part itself by a ring of wax.

Digitiform or filiform warts may be ligatured or snipped off, and nitrate of silver applied to the base. The acuminate form may give more trouble from their extent and vascularity. When small and few in number, keeping them perfectly clean and dry is sometimes enough of itself; but painting them twice a day with liq. plumbi subacetatis, or a solution of perchloride or iron, is valuable. If these fail, chromic acid is the most successful, and nitric acid is also good, but both are painful; while glacial acetic acid is generally successful and not very painful.

Small pedunculated growths may be removed like the digitiform; when large, by the galvanic écraseur, or they may be snipped

off, and styptics, such as the perchloride or persulphate of iron, applied with firm pressure. The bleeding is apt to be very great, and unless the growth is in a position readily accessible to pressure, the galvano-cautery is the safer plan, cutting through the mass slowly with a dull heat.

The warts of pregnant women should not be operated on until after parturition, but great care is required to keep the parts clean and sweet, and disinfecting lotions or powders are necessary; boric acid freely sprinked on is one of the best applications, but iodoform is valuable in obstinate cases.

CLAVUS (A nail).

Synonyms.—Corn; *Fr.*, Cor; *Ger.*, Leichdorn, Hühnerauge.

Definition.—A hyperplasia of the horny layers, in which there is an ingrowth as well as an outgrowth of horny substance, forming circumscribed epidermal thickenings, chiefly about the toes.

Corns may be hard or soft; the hard corn is a callosity plus a horny peg (the clavus or nail), which, growing downwards, produces atrophy of the papillæ and a cup-shaped depression immediately beneath, while the adjacent papillæ are hypertrophied. Externally there is much less elevation than in the callosity, and it is conical, with sometimes a slight central elevation harder than the rest; in larger corns, there may be more than one such horny peg, which, when pressed upon, dig into the cutis, and give rise to exquisite pain or dull aching, according to the acuteness of the pressure, producing sometimes inflammation and suppuration. Corns are chiefly situated on the outer side of the little toe, the upper surface of the other toes, or on the sole. The soft corn is situated between the toes, where it is softened by maceration, and may exude a small quantity of fluid. It is often more painful than the hard ones, and, like them, may suppurate and produce painful ulcerations, and even lead to caries. Corns are sometimes spontaneously painful, and those who have them badly, often find them veritable barometers for approaching wet weather.

Etiology.—Corns, like callosities, are almost always the result of pressure or friction; hence both tight or badly fitting boots produce them, and a combination of the two faults in construction is the most fruitful cause. Analogous conditions may arise spontaneously,

as in the case Davies-Colley records: the palms and soles of a Hindoo were the seat of disseminated clavus nearly all over the surface; there was no history of the circumstances of their formation, but they could scarcely be from pressure.

Pathology.—According to Rindfleisch, when the pressure or friction falls upon a yielding part, a callosity is produced; when on an unyielding situation, the pressure is more concentrated, and a corn results; in both cases there is congestion induced, which leads to hyperplasia of the horny layers. Small hæmorrhages beneath these thickenings are common, and sometimes a bursa is formed.

Treatment.—The first care must be to take off the injurious pressure, and to this end, the boots should be made to conform to the shape of the foot, instead of trying to make the foot conform to the boot. The corn itself may be removed, either by soaking it in hot water, and then shaving down the callosity with a sharp knife or razor, while the centre must be excised, preferably with a scalpel. The re-formation must be prevented by daily soaping, and wearing a perforated amadou or felt plaster for some time. Or, instead of cutting, a salicylic acid plaster may be worn until the thickened cuticle can be peeled off, and then the soaping be used, to prevent renewal. Soft corns should have the hard skin removed in one or other of the above ways; careful daily ablution with soap and water should be used, spirits of camphor painted on at night, and wool worn between the toes in the daytime. All the numerous corn cures, if of any use, act on one or other of these principles. Duhring recommends the application of a 4 to 8 per cent. caustic potash solution after removing the thickened cuticle; it must be done cautiously, the part round being protected by a ring of plaster. Vigier's formula is also a good one: salicylic acid gr. 15; ext. cannab. ind. gr. 8; alcohol ℥xv; æther ℥xl; collodion flexile ℥lxxv. It is to be painted on with a brush three times a day for a week, when the corn can be easily picked off.

CORNU CUTANEUM.*

Synonyms.—Cutaneous horn, Cornu humanum; *Fr.*, Corne de la peau; *Ger.*, Hauthorn.

* *Literature.*—Lebert, *Ueber Keratose oder die durch Bildung von Hornsubstanz erzeugten Krankheiten und ihre Behandlung* (Breslau: 1864), one hundred and nine cases. Wilson, *Med. Chir. Trans.*, 1844,

Definition.—A horny excrescence of much the same general structure as that of animals, but very variable as to shape.

Horns are very rare in the human subject, but having been regarded as curiosities, they have attracted more attention, and there is more written on them, than their practical importance would otherwise warrant. Lebert is the most comprehensive author on this subject. Horns are usually solitary, but may be multiple: thus Bötge had a case of a man, æt. sixty, with six horns on his face; and another case, a girl æt. nineteen, in which they followed upon an extensive eruption, and were succeeded by warty growths, which appeared in the second year of life and studded the part of the body below the crest of the ilium, where they were of various sizes, while near the navel and on the right labium majus they were nearly six inches long; it is probable, that this was a case of ichthyosis hystrix.

Human horns closely resemble those of animals, but they differ from them in not being of uniform size and shape; they are laminated or fibrillated, solid, and of course hard and dry, some shade of grey, yellow, brown, green, or black; roundish, conical, angular, or flattened; generally twisted or bent, only small ones being straight; they may have either a pointed or truncated end, but they are largest near the base of origin, which may or may not be raised above the surface. They may be of any size, from a quarter of an inch to twelve inches long, from about an eighth of an inch to between four and five inches in diameter; that of Paul Rodriguez,* growing on the side of the head, being fourteen inches round, and divided at the point into three branches. Their growth is usually slow, but variable, and they may either drop off or be knocked off, exposing a red raw surface, from which another is liable to be produced. The majority in Lebert's, Wilson's, and the French Academy lists are repetitions of the same cases. An analysis of these shows that nearly half the horns occur on the hairy scalp, forehead, or temples; about one-fifth on the rest of the face, especially on the nose; and the remainder on the body in the

vol. xxvii., p. 52, and *Dis. of the Skin*, sixth edition, p. 796, analysis of ninety cases and many references. *Mémoires de l'Académie Royale de Médecine*, June 1830, seventy-one cases. Pick, *Viert. für Derm. u. Syph.*, 1875, p. 315, ten cases of horns on the penis, with two coloured plates; in one case, the horn grew two inches in six months.

* *New York Medical Repository* for 1820.

following order :—the extremities, especially the thighs, the male genitals, chiefly in the sulcus of the glans penis, and the trunk. They are only painful when injured, and then may either be torn off, or the base irritated into inflammation which may lead to their dropping off. According to Lebert, epithelioma * develops in 12 per cent. ; in rare instances, horns have developed on epithelioma.

Etiology.—Of this our knowledge is meagre. Old age is a predisposing cause, and they are rare before forty, but have been seen at any age, from infancy (three cases) to ninety-seven years, and are slightly more frequent in females than males. The majority start from sebaceous cysts, others from warts, and some from scars.

Pathology.—They are essentially overgrown warts. They always begin in the rete mucosum, or the homologue of it lining the glands and follicles ; there is always hypertrophy of the papillæ, and upon these the horn is built up, being composed of columns which on section are seen to consist of epidermic horny cells, generally without nuclei, arranged in concentric laminæ, while similar cells, irregularly placed in the interstices between the columns, cement them together. Large vessels are formed in the base of the horn.

Treatment.—Soften the horn with water dressings ; or if the patient is under an anæsthetic, tear or cut it off and cauterise the base, or apply chloride of zinc paste or caustic potash, or scrape it with a sharp spoon. If the base be not removed, recurrence will take place. Their liability to epitheliomatous development renders it important, that the removal should be early and complete.

CALLOSITAS.

Deriv.—Callus, hardened skin.

Synonyms.—Callosity, tylosis, tyloma, callus, keratoma.

Definition.—A hard, thickened, horny patch, produced by hyperplasia of the horny layers.

Callosities may be congenital or acquired. The usual acquired variety is common enough in a greater or less degree, and forms

* For an example of this see a case by A. Pearce Gould in *Path. Trans.*, 1887.

on parts exposed to intermittent pressure or friction. They come chiefly on the palmar and plantar surfaces, are slightly raised, of various sizes, and consist entirely of hyperplasia of the horny layers. This produces the well-known thickenings, with which every one is so familiar, on the hands of oarsmen, mechanics (especially smiths), and, less frequently, on the fingers of harp and violin-players, and they do not therefore need any more special description. An extreme case, in a negro stoker, is recorded by Morrison.* On the feet they occur generally from ill-fitting boots, and are more common in men than women from the nature of their occupations, and more frequent in the middle-aged and elderly than the young. Occasionally, they appear to be spontaneous in their development. A curious instance of flat callosities over all the first interphalangeal joints came under my notice in the person of a very aged mulatto woman, but whether congenital or acquired I am unable to say; but they were not due to her occupation. Mr. Sutton informs me that callosities, in exactly the same position, are always present in gorillas, as they press upon this part in walking. A similar condition exists over the ischial tuberosities of baboons and other cynomorphous monkeys.

Treatment.—When treatment is required, which would not be the case when the affection is due to the occupation, the part should be soaked in hot water and pared down with a scalpel, and then Unna's salicylic plaster continuously applied for a few days, when the whole horny part will be loosened and can be peeled off. To make it a permanent cure, the cause must be avoided.

TYLOSIS PALMÆ ET PLANTÆ.†

Deriv.—τύλος, a callus or callosity.

Synonyms.—Ichthyosis palmaris et plantaris; Keratoma; Keratosis.

Definition.—Hypertrophy of the horny layer of the palm or sole into a hard plate.

* *Amer. Jour. Ven. and Cut. Dis.*, vol. iv. (1886), p. 5, with plate.

† See a paper by the author in *Brit. Jour. Derm.*, vol. iii. (1891), p. 169, with cases and coloured plate.

Although tylosis is pathologically allied to the callositas, and is etymologically a synonym of it, it is clinically convenient to separate the two conditions.

Tylosis is a rare affection, and usually congenital, but may be acquired. It is symmetrical, and almost always affects both palms and soles, though there may be some variation in degree. It is usually confined to the palmar and plantar surfaces, but the dorsum may be affected to some extent over the joints. In a well-marked case, the horny layer of the epidermis is thickened into a yellowish translucent, horny plate, from one-sixteenth to one-eighth of an inch thick, as a rule quite dry and hard, but it may be associated with hyperidrosis, and is then of course sodden. The surface may be quite smooth or it may be pitted, and have a worm-eaten appearance. This plate forms a uniform layer over the whole palmar surface, with abrupt borders without any redness beyond. On the soles, the inner border of the sole at the arch of the foot escapes; in other words, only that part of the foot which touches the ground in walking is affected. There is great deepening of the main lines of flection, and there is naturally some hindrance to free movement, and diminished sensitiveness, but no other symptoms.

This condition may arise from the long-continued use of arsenic, and perhaps from hyperidrosis, and at the commencement the horny thickening occurs round the sweat orifices, at first like lichen planus, but later projecting in convex papules, so that the surface is nodular; and at this period its arsenical origin may be surmised, but gradually the slight depressions between the little nodules become filled up, and a level surface is produced, and then the tylosis is indistinguishable from the congenital form, unless other circumstances point to arsenic as a cause.

The variety figured by Hebra in his *Atlas*, and called "*tylosis palmæ manus verrucosa*," * is probably the nodular stage of arsenical tylosis. When the knuckles and finger joints are affected, the thickening is not uniform, but has a pitted aspect, and is not so much developed as on the palmar surface.

Etiology.—Most of the cases are congenital, and show some change soon after birth, but it does not attain its full development for some time. It attacks both sexes, though when it shows family prevalence, it may be confined to one sex in that family. It

* Hebra's *Atlas*, Heft x., Taf. 1, figs. 1 and 2. Fig. 1 represents the ordinary form.

is often traceable through several generations; thus in my case* and that of Horton Dale,† recorded as before mentioned, it went through five generations, in Unna's ‡ cases three generations, and in another of my own cases at least two. In the first named of my cases, every autumn, beneath the palms only, blisters formed of about the size of a sixpence, which if exposed to friction became very large. They formed in succession, the whole epidermis became loosened and peeled off, leaving the skin thin and tender. In an acquired case, with chronic pemphigus pruriginosus,§ the thickening came on simultaneously with hyperidrosis, but much arsenic had been taken. Other cases have had hyperidrosis; thus H. Hebra, at the Vienna Dermatological Society, showed a case of verruciform keratosis following hyperidrosis;‖ and Kaposi, in the discussion, spoke of it as the usual antecedent.

Besides these cases of simple hypertrophy, horny thickening of the palms and soles may occur secondarily to inflammations, such as eczema, psoriasis, lichen planus, syphilis, etc. These are generally patchy, but may affect the whole surface and have other differences, which are described under their appropriate headings. There remain a certain number of rather rare cases, in which, along with the thickening of the epidermis, there are some inflammatory phenomena in the form of a ring of erythema, and perhaps swelling and a sensation of heat at the border of the horny portion. This condition may be in patches with a broken-up surface, as in the **keratodermia erythematosa symmetrica** of Besnier; or diffuse, as in the **erythema keratodes** of Brooke. I saw a well-marked case, resembling Besnier's,¶ in a gouty man, æt. fifty-six. The condition is unlike eczema palmare in appearance, but may be allied to it. The nosological position of Brooke's** case is doubtful; he is quite

* *Loc. cit.*

† *Brit. Med. Jour.*, October 1st, 1887, p. 718.

‡ Unna, "Ueber das Keratoma Palmæ et Plantæ Hereditarium," *Viertelj. f. Derm. u. Syph.*, vol. x. (1882), p. 231, with photograph.

§ Brocq, who has seen tylosis associated with hydroa herpetiforme, thinks that my case is also that affection, and not pemphigus; but he regards pemphigus pruriginosus as a phase of hydroa herpetiforme.

‖ I saw this case at the International Congress of Dermatology at Vienna, and the girl confessed to having taken arsenic for her complexion, in large doses for six years.

¶ *International Atlas of Rare Skin Diseases*, plate v., fig. 1.

** "Erythema Keratodes of Palms and Soles," *Brit. Jour. Derm.*, vol. iii. (1891), p. 335, with coloured plate.

satisfied that such cases have nothing to do with ordinary tylosis, but it is convenient to consider them here until we know more of them.

Treatment.—In congenital cases, a cure can, *a priori*, scarcely be expected ; but Unna cured five members of the family already alluded to, by perseveringly painting on a 10 per cent. solution of salicylic acid in æther, to which a little fat was added ; while to the more marked cases, a 20 per cent. salicylic acid plaster, applied as already directed, and repeated several times, whenever the thick skin re-formed, was eventually successful. A similar treatment might be tried for the arsenical and other acquired cases, but I have never seen a cure yet, though Hebra says they get well spontaneously in about a year. In the inflammatory form, Besnier produced amelioration by means of soft-soap applications and baths, but could never cure it, and in the winter it was always worse. My patient improved with ichthyol and salicylic acid applications, but he lived a long way from London, and I lost sight of him before he was quite well. Brooke produced an apparent cure of his cases with ichthyol in three-minim doses internally, and the constant application of an ointment of ichthyol and salicylic acid ; but one subsequently relapsed.

SCLERODERMA.

Deriv.—σκληρός, hard ; and δέρμα, the skin.

Synonyms.—Sclerodermia ; Hide-bound disease ; Sclerema or Scleroma adultorum ; Scleriasis ; Dermato-sclerosis ; Chorionitis ; Sclerostenosis ; *Fr.*, Sclérème des adultes, Sclérodermie ; *Ger.*, Hautsclerem.

Definition.—A subacute or chronic disease characterised by extreme induration and rigidity of the skin.

The first case known, is that of a Dr. Curcio of Naples in 1752.* A few isolated cases were subsequently recorded by Lorry, Henke,

* Quoted by Willan, p. 208, under the name of ichthyosis cornea. Colcott Fox, "Note on the History of Sclerodermia in England," *Brit. Jour. Derm.*, vol. iv. (1892), p. 101, gives references to many of th old cases.

Alibert, etc., but it was not until Thirial's paper in 1842, recording two cases under the name of "Sclérème des adultes," that the attention of the profession was attracted and the disease generally recognised.

There are three classes of cases :—

1. Where the skin affection is diffuse and symmetrical.
2. Where it is circumscribed, usually called morphœa.
3. Mixed cases, where there is a combination of the other two forms.

Although they all have the same anatomical basis, the first two differ clinically and etiologically in many important points, and are therefore described separately.

DIFFUSE SYMMETRICAL SCLERODERMA.*

This is a very rare disease, but owing to its striking peculiarities, many cases are on record. I have had five, four females and one male, under my own care, and have examined about a dozen more.

This form presents itself under two phases : *infiltration*, or, as it is more commonly but incorrectly called, *hypertrophy*, and *atrophy*, clinically represented by swelling and then shrinking of the skin. The infiltrated form is the early stage, and may be hard from the first or œdematous ; the shrunken is a sequel of the swollen stage, which has then generally been œdematous in the first instance. The disease frequently comes on after exposure to cold or wet, often with pains in the joints, or there may be no symptoms before the stiffness of the skin sets in. This may spread in a few days over a large part, or even the whole of the body surface, or again, the disease may be so insidious and gradually progressive, that the patient can scarcely mark its commencement. There is no elevation of temperature, unless from complications, and there is often very little, or no disturbance of the general health. The commonest positions for the stiffness to be first felt, are the back of the neck, the chest, shoulders, and arms ; at all events, in some part of the upper half of the body with few exceptions. This stiffness increases in intensity and extent either slowly or rapidly, traversing a great part of the trunk, limited

* "Lectures on Scleroderma," by the author, *Lancet*, vol. i. (1885), pp. 191, 237, 927, 975.

below by a horizontal line, though the edge is imperceptible to the eye, while to the touch it is ill-defined, merging gradually into the healthy skin. The scalp, face, neck, and upper limbs may all get involved, each joint being fixed as the skin over it becomes rigid. In the hard cases, the volume of the part affected is increased, and the infiltration of the skin makes it extremely tense. The muscles * may be implicated, resembling rigor mortis, and the whole skin is so hard, that it suggests the idea of a frozen corpse without the coldness, the temperature not being more than a degree or two below the normal. No pitting can be produced by pressure, and all attempts to pinch it up are futile ; but when the finger is drawn across with firm pressure, it makes a white streak with pink borders, and the normal colour is only slowly regained.

When the face is affected, it is Gorgonised, so to speak, both to the eye and to the touch. The mouth cannot be opened ; the lids usually escape, but if involved, they are either half closed, or when contraction takes place, drawn widely open, but immovable in either case. The effect of the disease on the chest walls, is to seriously interfere with respiration, and flatten and almost obliterate the breasts, and upon the limbs, to fix the joints in a more or less flexed position from the shortening of the distended skin.

In some instances, the mucous membrane of one or the other of the cavities is affected, including that of the mouth, tongue, palate, pharynx, œsophagus (judging from occasional dysphagia), larynx, and vagina. In short, no part of the body surface is exempt, though the palms and soles are perhaps the most rarely involved, escaping sometimes, when the whole of the rest of the body is affected. While the disease displays a decided preference for the upper portion of the body, it is most erratic both in what it includes and in what it passes over, but is always symmetrical in distribution, though not in intensity, and the legs are never affected without the arms, though the contrary is often noticed. The surface of the skin may be very little altered to a casual observer, but closer inspection shows that the natural lines are obliterated. There may be some patchy erythema at first, and later minute vessels are dilated and form telangiectasic tufts and striæ, contrasting with the rest of the surface, which is paler than normal as a whole, and

* The muscles may be affected independently of the skin, though usually the skin and other tissues are simultaneously involved. Cases are recorded by Goldschmidt, Westphal, Méry, Thibierge, etc.

in parts, is quite white from the obstruction of the circulation, of which many of the symptoms are a consequence. Pigmentation is often present, striated, mottled, or diffused over a large area, and varying from a pale fawn, up to a deep brown or almost black.

Subcutaneous tubercles have been observed in a few cases (Hutchinson, Gaskoin, and myself*); they appear to me to be of the same nature as "rheumatic nodules," occur especially over bones, and disappear spontaneously; and it is probable, that they would be often found if specially looked for.

Sensibility is rarely affected, but both slight increase and decrease have been noted. Pruritus, however, is more frequent, and in one of my cases was a very troublesome symptom.

The secretion, both of sweat and sebum, is diminished in proportion to the intensity of the affection, and may be quite absent, so that the skin gets rough and peels, and on the legs may be almost ichthyotic, from the dryness of the cuticle; in the atrophic form, the palms and soles, however, are generally moist.

In the other set of cases, œdema instead of induration is first observed, not, however, of the usual doughy kind, but a stiff œdema, resembling, as Wilson puts it, the pitting produced by pressing the finger into a bladder of lard. After this has lasted a variable period, amounting to some weeks or months, the œdema gets absorbed, the skin begins to shrink, acquires a dried or ivory-white colour, and the atrophic form is developed. This is the course of most of the œdematous cases, and I believe of all of them, while it *is very doubtful, if the cases which are primarily hard and infiltrated, ever become atrophic*, but this requires further observation.

The atrophic condition is not so widely spread as the œdema which preceded it, and is more frequently confined to the face and the limbs, especially the upper, but the symmetry is retained, and the alteration is much more obvious to the eye. In the face, the skin, from pressure-atrophy of the fat and muscles, is strained over the bones to which it may be directly adherent, the lips are shortened, the gums shrink from the teeth, and lead to their falling out, and the nostrils are compressed. As in the other form, the lids generally escape, but the hard edge of the lid has been known to produce ulceration of the cornea, or, their contraction may keep the eyes permanently open. The strained skin, the emotionless

* Jane E. (U.C.H.).

features, with the pallor relieved only by telangiectasic striæ, give the countenance a ghastly, corpse-like aspect.

The same process affecting the limbs,—the arm, for example,—reduces the limb of an adult to the size of a child's, ankyloses the joints, and distorts the hand, so that the third and fourth fingers are curled up into the hand, the first and second are bent at the first phalangeal joint, while the thumb phalanges are over-extended; this is the "**sclérodactylie**" of Ball. The limb looks and feels like an ivory carving; the skin is even more unyielding than in the infiltrated form, but from shrinking, not distension. In consequence of the tension of the skin over the joints, ulcerations easily ensue upon slight injuries, and necrosis of the phalanges may result. When the tendon of the biceps is involved, it forms a tight cord across the front of the forearm and flexes the limb at a more or less obtuse angle. On the other hand, in one * of my cases it missed out a piece of skin at the flexure of the elbow and knee, olecranon and patella, on each side, and left comparatively free movement in those joints, while those below them were fixtures. Owing to the ivory-white colour and to the shrunken parts being below the healthy skin, the end of the diseased surface is easily seen; but the disease may affect the deeper tissues, somewhat beyond the visible border, which is irregular, and may be fringed with a pink or violet zone of small dilated vessels. Pigmentation affects these cases also.

The course taken by the two forms differs somewhat. The tensely infiltrated cases tend to clear up sooner or later. Improvement sets in gradually; the infiltration is slowly absorbed; the skin becomes gradually softer, and after some months, or even years, regains its normal elasticity. Whether any of these cases degenerate into the atrophic form is not quite settled.

Progress towards recovery is not, however, uninterrupted. A slight chill (and the patient is very sensitive to cold) may aggravate the disease, and even extend the process, and the patient, from internal causes also, may feel his skin tighter on some days than others. In the contracted form, recovery is less frequent; the disease often remains stationary for years, and in rare cases fresh portions of the body may from time to time be affected, and the patient may sink under it, with emaciation and exhaustion. Improvement may eventually set in, if judiciously treated, and the

* Jane E., æt. thirty-nine (U.C.H., females).

induration may entirely disappear; but nothing can restore the atrophied tissues, and some of the joints having become permanently ankylosed, more or less deformity is left. The ankylosis is, however, never bony, but entirely due to the fibrous contraction. This was well shown in the section of a finger of a patient of mine who died from heart disease, and in whom the disease, in the atrophic form, had been present twelve years; the induration, however, having quite cleared up for some years before death, leaving only the deformities and thinned skin.

Complications.—Acute rheumatism is the most common complaint which may precede or accompany the scleroderma, and cardiac valvular disease may be present, either with or without the joint manifestations of rheumatism.

Other eruptions are not precluded, such as eczema, acne, etc. In one of my cases, eczema capitis was present in the height of the scleroderma, but yielded to the usual treatment. If the disease lasts long, emaciation sets in, and the whole vital powers appear to be diminished, so that the patient more easily succumbs to other diseases to which he may be exposed.

Children.—Although the name adultorum has been appended in contradistinction to sclerema infantum, with which it has no connection, scleroderma frequently occurs in children, and bears the same character among them, except that it tends to run a more acute course both in onset and termination, while the atrophic phase is less often developed. In a child of twelve, who came under my care, through the kindness of my colleague, Dr. Eustace Smith, the whole body surface was involved, except the palms and soles, within a fortnight, and there were endo- and pericarditis; yet within three weeks, some diminution of the induration set in, though it was twelve months before she was quite well. Many run a much slower course than this.

Etiology.—Women are much more prone to this disease than men, in the proportion of three to one, and young and middle-aged adults are the most frequent victims; but thirteen months * and seventy-two years † are the extremes of age on record.

* Isambert, *Gaz. Hebd.*, 1863, p. 840; and Norman Moore, *St. Bart.'s Hospital Reports*, vol. ix., p. 70, records a case of two years.

† A case of a man in whom the disease affected both legs (Dr. Sidney Roberts, Sheffield Med. Chir. Soc.). Jane R. (U.C.H.) was sixty-seven years.

Among other predisposing causes, previous attacks of acute rheumatism and erysipelas play the most important part, probably from such subjects being unduly sensitive to cold; privation and exhausting emotional conditions are also said to be causes. In one case (Pick*), it followed directly after exposure to the sun in a long march. Most instances from these causes are comparatively acute. Many patients have had previous good health up to the time of the scleroderma, and no cause could be assigned for it, and the slow, insidious cases generally baffle investigation as to their origin. Bancroft's † observations of the concurrence of filaria sanguinis with scleroderma are probably only coincidences. Touton records a case, the result of injury from a splinter of wood; Mendel met with a case of a woman, æt. forty-one, who, after suffering from Raynaud's disease to the extent of coldness and lividity for two years, symptoms of Morvan's disease appeared, followed by atrophic scleroderma, with marked bronzing of the face.

Pathology. — Of this we know very little. Most of the symptoms are referable to obstruction, on the one hand, to the arterial blood supply, and, on the other, to the venous and lymph flow.

The symptoms, which differ so much in many cases, mainly depend, in my opinion, upon the varying degree in which the obstruction affects one or other of these vascular systems.

The disease is not one of lymph obstruction alone, or we should get the condition of elephantiasis arabum, as Kaposi points out, but there can be little doubt that it plays an important part; and if the arterial supply is diminished, there would not be the excessive hyperplasia which is seen in elephantiasis. The obstruction is apparently, in great part, due to the cell effusion, which forms a sort of sheath round the vessels, but what the original defect is, which starts this, is obscure. The most plausible and generally received theory is that of a defect in the nervous system, high up necessarily, since the disease affects the face, and not improbably in the vaso-motor centre, but how this nerve influence produces these special phenomena cannot be explained satisfactorily. Schultz of Brunswick found extensive lesions of the anterior roots of the spinal cord in a case of scleroderma, with bronzing.

* *Viertelj. f. Derm. u. Syph.*, 1884, Heft i., p. 227.

† *Lancet*, February 28th, 1885, p. 380.

Anatomy.—The skin of diffuse scleroderma has been examined anatomically by Förster, Neumann, Kaposi, Schwimmer, Babes, Chiari, Fagge, and others, the skin having been taken from both the living and dead subject, and though differing in some particulars, probably from the disease not having been in the same stage in all, the results agree in the main, and may be stated as follows :—

The changes are almost entirely in the corium and subjacent tissues, pigmentation of the rete, as well as the corium sometimes, being the only epidermic change as a rule, though Neumann found downgrowth in one case. The vessels are narrowed by the pressure of layers of cells of varying thickness which surround the vessels like a sheath (Rasmussen, Kaposi, etc.), and in Schwimmer's case, examined by Babes, there was narrowing from concentric hypertrophy of the media and intima. What leads to this accumulation of cells is not known, and it cannot be shown whether they are derived from the lymph channels round the vessels or are emigrant cells from the blood vessels, but they do not appear to be of inflammatory origin, as all other evidence of inflammation is wanting. Masses of cells are especially abundant round the sweat and sebaceous glands, the hair follicles, and in the panniculus adiposus. These tend by their pressure to produce atrophy of the subcutaneous cellular tissue, but they are never seen in the papillary layer (Neumann).

The blood vessels also, while well filled with blood and broad at the lower part of the corium, are bloodless near the papillæ, and are also here thin-walled and diminished in number.

These changes in and around the vessels are probably the primary and leading feature, to which the other anatomical lesions are secondary. These latter are, increase of the connective and elastic tissues of the corium, the meshes of which are closer together than usual, and hypertrophy of the organic muscular fibres. There is ectasia of the sweat glands, the cell masses are abundant round them, and eventually produce destruction of the acini and of the hair follicles, and atrophy of the fat and subcutaneous cellular tissue from the pressure of the cell proliferation ; and nothing else intervening, the condensed overgrowth of the connective tissue of the corium may be directly adherent to the fascia or periosteum. This description of the secondary changes applies to the later stage of the disease. No complete examination of the skin in the earliest or infiltrated stage has yet been made.

Diagnosis.—The wooden induration and immobility of the skin and subcutaneous tissues, occurring symmetrically over a wide area, with or without the ivory colour supervening, and the surface otherwise so little altered, are conditions peculiar to scleroderma, with the sole exception of sclerema of the new-born, in which there is induration with great coldness of the surface. This, and the age of the patient, would be obvious distinctions, thirteen months being the youngest age of any recorded case of scleroderma, so that there can really be no difficulty in diagnosis rom the affection of the new-born. For the diagnosis from the

rare disease *xeroderma pigmentosum* see that disease, while most of those exceptional cases of so-called *general atrophy of the skin* are really, in my opinion, examples of atrophic scleroderma (see *Atrophia Cutis*). There remains only one disease, even rarer than scleroderma, which may give rise to some doubt, namely, *diffuse primary or secondary cancer of the skin*—"cancer en cuirasse" of Velpeau. If secondary, it often begins as nodules; this and the previous history would remove all doubt. But in the primary cases it may be difficult; the slow, continuous spreading, the lancinating pains and tenderness, the neighbouring inflammatory œdema, the ulceration of the lesions, and involvement of the glands, with the more rapid course to marasmus and fatal cachexia, are all points in which it differs from scleroderma, and would guide to the correct diagnosis.

Prognosis.—Speaking generally, the disease, as a rule, tends to get well spontaneously, but it is impossible to predict how long any case may take; rarely less than twelve months is required for complete recovery, though improvement may set in in a few weeks; on the other hand, the hardness may last several years, with exacerbations and remissions. The swollen are much more favourable than the shrunken cases, and, in my opinion, those which are indurated from the first, are more favourable than those which are œdematous, as they are less likely to become atrophic. As long as there is induration with distension, hopes of complete recovery may be entertained; when atrophy has set in, although, either as a result of treatment or spontaneously, the skin may get soft and mobile again in a few cases, it can only be after some years, and the subjacent tissues have then become so permanently damaged, that more or less deformity and crippling remain. More frequently in atrophic cases, general emaciation sets in, and eventually the patient dies marasmic, or falls an easy victim to inter-current disease of the lungs, kidneys, etc.

Treatment.—The indications are, to guard the patient against cold, and so prevent aggravation, which nearly always ensues after exposure to chilling influences; secondly, to improve the general nutrition; and thirdly, to restore the circulation in the ischæmic area.

For the first, the patient should be clothed in flannel, never allowed to go out in cold winds, and draughts be carefully guarded against.

For the improvement of nutrition, which suffers generally as well as locally, cod-liver oil and ferruginous and other tonics, which may be suitable to the individual, are the most important. Care must be bestowed on the digestive organs, both for the sake of improved assimilation, and also because flatulence materially aggravates the discomfort of the patient, when the trunk is affected. Iodide of potassium, arsenic, mercury, and other so-called specifics have been tried extensively and found useless, and mercurial inunction has been distinctly injurious in some cases; and even in cases in which it has been apparently successful, the result was probably due to the friction with an oleaginous substance, and not to the mercury.

For the third, shampooing should be systematically and diligently employed to the affected parts, either after Turkish, but not vapour baths, as they are too depressing, or where Turkish baths cannot be obtained, with oily substances, such as neat's foot or olive oil, or simple ointments. Galvanism is strongly recommended by some, and may be of service sometimes, probably by improving the circulation.

CIRCUMSCRIBED SCLERODERMA.

Synonyms.—Morphœa (*Gr.*, *μορφή*, form, or more probably, as Wilson suggests, a blotch); Keloid of Addison.

Morphœa is the term in general use for this variety, which is still regarded by many authors as a disease separate from scleroderma, but most dermatologists have been convinced, by Hilton Fagge's paper in *Guy's Hospital Reports for* 1868, of its close clinical relationship to scleroderma, and my own observations * have shown that they are anatomically related. Circumscribed is more common than diffuse scleroderma, but is still a rare affection.

Symptoms.—While its general characteristics are the same in all cases, it varies very much in many of its details, and presents itself in two aspects, *patches* and *bands*, the patches being the more common.

In a typical case, one or more patches, from half to two inches in diameter, appear gradually without symptoms, and, therefore,

* *Path. Trans.*, vol. xxxi. (1880), p. 315.

unless they are in an exposed position, often without attracting notice, until they are fully developed. Each patch is of irregular shape, of a dead white or old ivory white colour, bordered with a narrow violet, lilac, or pink zone, which close inspection shows to be made up of minute dilated vessels. The patches are level, or nearly so, with the surrounding skin, generally unilateral, sometimes distinctly arranged in the course of a nerve, in the same way as herpes zoster ; appear anywhere upon the trunk, but especially on the breasts ; on the head and face, in the domain of the fifth, especially the supraorbital branch ; and on the limbs most frequently of all, the lower being affected more often than the upper. As a rule, there is no difficulty in pinching up the affected skin, as it is not adherent to the subjacent tissues, and feels like parchment or stiff leather, according to its thickness, which may be greater or less than normal, varying even in the same patch. The surface is dry, the cuticle cracks sometimes, but more frequently is quite smooth from the obliteration of the natural lines and the absence of hairs, unless the patch contracts towards the centre, when there will be minute radiating corrugations. When once it is developed, the diseased area may remain stationary for a long period, and then slowly fade, the skin gradually resuming its normal appearance, or the patch may grow at the circumference by the formation in its neighbourhood of minute, pearly white, slightly depressed atrophic spots, about one-sixteenth of an inch across, which gradually enlarge, thicken, and ultimately coalesce with the major patch. The duration of the disease varies from a year or two to eight or ten, and may be attended by the development of fresh patches from time to time, and the retrogression of some of the others. As a rule, there are no attendant symptoms except slight itching or the absence of sweating in the patch, but the sensibility is very rarely affected, and no special defect of health is demonstrably associated with it.

The *band* form differs in several respects from the patches. Usually single, and adherent to the subjacent tissues, it is hence sunk into a sulcus below the surface, but if not adherent, may be raised up into a ridge. When affecting a limb, it may extend the whole length of it, or of one of its segments, and often presents the aspect of a cicatrix, especially when it sinks deeply into the soft structure of the breast or is abruptly limited by the middle line on the forehead.

Variations.—Almost every statement applicable to the generality of cases may be contradicted in exceptional instances. Thus pain and tingling, or itching, have sometimes preceded or accompanied the lesion; a patch may be evolved in a few days,* and involution, when it does set in, is sometimes rapid; † it may cover a large area or be very small; sometimes, the patches are bilateral or even symmetrically disposed, and occasionally upon the median line; or again, instead of being confined to one region, they may be scattered over a great part of the body surface, and are sometimes of large size, going quite round a limb, for instance. They may be very distinctly depressed below the healthy surface, especially in the centre, from adhesion to the tissues below, or raised above it, sharply defined at the margin, or merging imperceptibly into the normal skin.

The violet zone of dilated vessels is often absent, and the surface, instead of being an ivory white, may be, in parts, pink, lilac, or red, from underlying vessels being seen through the thinned skin, or they may be tinted more or less deeply, in various colours of yellow, brown, or even purple, green, and black.‡

Many of these variations have been distinguished by various names, such as M. tuberosa, lardacea, maculosa, nigra, etc., but they are superfluous designations, and are deservedly falling into disuse.

In addition, pearly white, scar-like lines and spots, like true striæ and maculæ atrophicæ, may be associated with the more characteristic lesions, and telangiectases, and pigment patches without induration, may also be observed, which after a time either disappear or develop into the more characteristic lesions. True keloid of Alibert § has occasionally supervened, but this is

* Wm. M., aged eleven, E.L.C.H.

† Miss K., patch on nape, after remaining two years, got rapidly well after typhoid fever.

‡ Gaskoin's case, *Med.-Chir. Trans.*, vol. lx., p. 113, is an extreme instance.

§ Longbottom, E.L.H., a large patch, two inches by one and a half, developed, unnoticed at first, in right supra-clavicular region; it was excised and recurred; the upper portion was again excised and keloid developed here; this patch grew larger under observation in the way above described. After a time, the corresponding position on the left side became of a general pinkish hue, with dilated vessels coursing over it; on this, small white spots, which gradually enlarged to the diameter of one quarter to half an inch, appeared and remained then unchanged. The case was under observation between seven and eight years. In January 1885, signs of involution were

probably accidental. In a case under Tilbury Fox, which I saw, all the patches, which were numerous on the trunk, ulcerated over their whole surface. Jamieson and Fox of New York, also report ulceration of one or more patches.

Changes in other tissues are also occasionally observed; thus Streatfeild's case of fifth-nerve morphœa, was associated with exostoses of the lower jaw and palate of the same side. On the other hand, atrophy of the subjacent tissues and muscles sometimes ensues, especially in band cases, producing deformity in the case of a limb; the morbid skin, as in the diffuse form, may then be directly adherent to the periosteum.

Etiology.—It is more common in females than males, in a larger proportion even than diffuse scleroderma. It may affect all ages after the second year; the patches are chiefly seen in young adults and the bands in children.

People of neurotic temperament are most frequently the victims, and prolonged anxiety, worry, or other causes of nervous depression appear to be predisposing influences. Chills are a possible exciting cause, but much less frequently than in the diffuse form.

Local irritation appears to be an exciting influence sometimes, and perhaps if carefully looked out for would account for many that are otherwise inexplicable. Thus cases are recorded as occurring at the spots where the garters were applied (Fagge), following the application of a blister (Gillette), the friction of a boot,* a blow on the knee,† etc.; and it is not improbable, that some of the breast cases are due to the irritation from the edge of the stays, etc., and some neck cases, to the friction of the clothing; no doubt the predisposition must be present also, but this applies to local causes for many other diseases. When all the above conditions have been taken into account, it will still be true, that no adequate cause can be found to account for the majority of cases.

observed in the oldest patch on the right side, but the keloid remained. In Addison's case of Eliz. Nicholls, keloid followed a scald. In Hutchinson's case, p. 329 of *Lectures*, keloid developed on the scars of some chronic eruption.

Hutchinson's case, *Lectures*, p. 322.

† Simpson's case, *Brit. Med. Jour.*, June 7th, 1884. Also in *Dub. Jour. Med. Sci.*, February 1891, is recorded the case of a boy of eleven, scleroderma of the left half of the body, the left side of the face, and the left extremities, followed a violent blow over the left hip. There was also atrophy of left side of the face and limbs, and alopecia in affected regions.

Anatomy.—The anatomy of circumscribed scleroderma has been examined by myself; sections were made both of the early or atrophic stage, and also of the later condition. The results were as follows :—

Epidermis.—There was no perceptible alteration in the epidermis, though, of course, there would be in the pigmented cases. In some sections, there were a few leucocytes in the Malpighian layer.

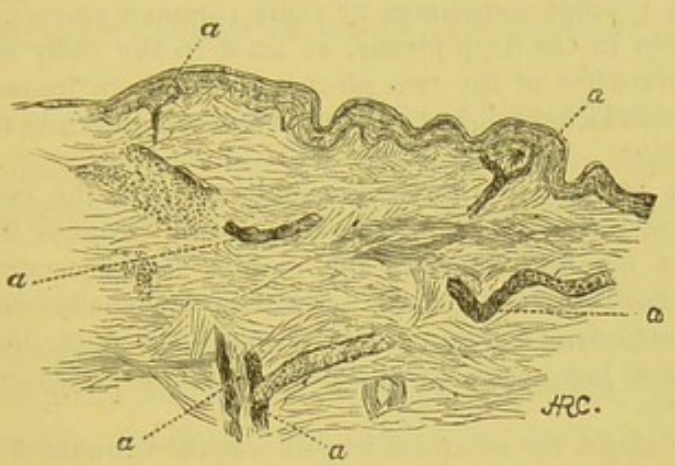

Fig. 23.—Portion of morphœa patch × 60, showing papillæ obliterated and vessels at *a*, *a*, *a* blocked with thrombi.

Corium.—The papillæ were less prominent than normal. In many of the vessels of the superficial longitudinal plexus and papillary branches (fig. 22, *a*), thrombi were found blocking the lumen; in some sections, the thrombus extended into the minute branches going up to the papillæ, but more frequently the vessels lying horizontally were alone occluded. In one section, a small dot situated at the angle of bifurcation of the vessel, suggested an embolus.

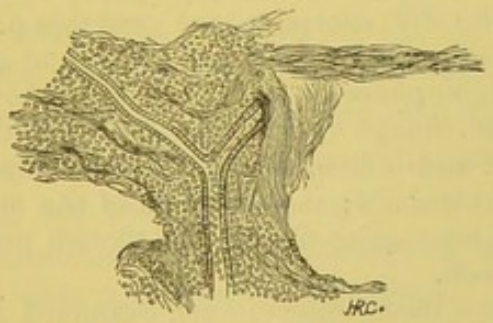

Fig. 24.—Blood vessel in a patch of morphœa surrounded by a dense mass of leucocytes.

There were always present numerous irregularly branched masses of cells, about the size of leucocytes, staining deeply with carmine, but taking rather longer to do so than the surrounding tissues, and except when grouped round the sebaceous glands, they mostly lay horizontally, corresponding to the superficial longitudinal vessels.

Blood vessels could frequently be seen going into the mass, and in some cases, they were connected with the vessels that had a thrombus beyond

the cell groups ; sometimes, the vessel appeared to expand at these masses as if it were ruptured, and the cells were an effusion from it. In other sections, vessels might be seen with cells round them (fig. 23).

Branching from the cell masses, there was often a reticulum consisting of fine fibrils with well-defined borders and cells at intervals upon them, like knots in a net. These cell foci were mainly, as has been said, round the superficial longitudinal vessels, the papillary branches being without them (except sometimes at their commencement). The process was rarely seen in the deep plexus, at least in the early stages, but the connecting branches of the two plexuses were more frequently involved, and this cell exudation might be seen occasionally, even in the upper layer of the fat.

Round the sebaceous glands and hair follicles, the cell groups and reticulum were very abundant, chiefly, I think, because there are more vessels in the neighbourhood of the glands. Cells occurred round the sweat ducts, but the sweat glands lying deeper, usually escaped ; and in one of the sections, showing the cells round the duct, the gland below was normal, and just above it was a deep vessel of the corium running into a mass of cells.

In the later stage, the essential feature was the increase of the connective and elastic tissues from the fibrillation of the cells seen in the early stage. The papillæ were nearly flattened out. The dense bundles of connective tissue pressed upon and obliterated many vessels, and caused atrophy of the sebaceous glands and of the sweat ducts, very few of which were seen in this stage. In one section, where the disease was of long duration, there was distinct increase in the connective tissue between the acini of the sweat gland, and the lining cells appeared to be pressed together. Although this implication of the sweat glands was exceptional, yet destruction of the ducts necessarily prevented the escape of the secretion, which was proved by the injection of pilocarpine subcutaneously close to the patch, when, while the skin around was quite wet with perspiration, the patch itself was quite dry, except in one very thin part, which lacked the smooth, parchment-like feel of the denser parts, and gave a slight sense of resistance to the finger passed over it. A zone about half an inch wide round the patch was, though moist, decidedly less so than the parts beyond. With aniline violet and iodine, no evidence of lardaceous change in the vascular walls was obtained ; the cut ends of the muscular fibres in the wall of the vessels were quite discernible, though perhaps a little less so than in normal vessels.

Dühring has, since these observations, examined a soft, pliable patch, from the back, of some months' duration, and found only " a condensation of the connective tissue of the corium with a shrinkage of the papillary layer." Babinski has also made observations on it.

The *Pathology* from the above facts appears to be that, owing probably to some defect in innervation, cell exudation occurs round the vessels, narrowing the lumen, obstructing therefore the blood flow, and leading to thrombosis, and sometimes to a real rupture

and effusion. Each atrophic spot seen near a growing patch is the base of a cone from which the blood supply is cut off, the violet zone being due to collateral hyperæmia round an anæmic area. The patch or atrophic spot thickens by the fibrillation of the effused cells. Where the arterial supply is completely cut off, an atrophic spot only is produced; where it is only diminished, partial atrophy with connective tissue hyperplasia or morphœa is developed.

Diagnosis.—A well-marked case of circumscribed scleroderma can scarcely be mistaken for any other affection, the flat, ivory-white, circumscribed, violet-zoned, unilateral patches are so very distinctive.

Vitiligo or *leucoderma* is only a defect in pigmentation, and there is no change in the texture of the skin; moreover, it is dead white, and morphœa has nearly always a yellowish tinge.

Morphœa with raised patches might be something like some cases of *Alibert's keloid*, but keloid is more vascular, harder, and has often claw-like processes, which will distinguish it, and it would never have a nerve distribution.

Kaposi describes some of the phases of the eruption of non-tuberculated lepra under the term morphœa;* with these, the circumscribed scleroderma has little in common, except that both are probably due to defective innervation.

The cases of M. alba, lardacea, and nigra, that Kaposi also puts down to the account of a local leprosy, seem merely to be examples of the affection we have been considering.

Some of the cases which have been described as hemiatrophia facialis, or unilateral atrophy of the face, are doubtless examples of fifth-nerve morphœa, but others seem to be an independent condition, affecting all the tissues, and are due to defective innervation, and some are rather instances of arrested development, without the skin changes of morphœa. Such a case was originally described by Romberg, and was subsequently seen and described by Virchow, Eulenberg, Charcot, and latterly Payne, who showed the man at the Pathological Society of London in 1881, when I saw him. His case is published, with photographs, in vol. xxxii. of the *Transactions*, p. 306.

Poore, Larde, Frémy, Hammond, Bannister, and Robinson have also published cases.

* Hebra, vol. iv., p. 156.

Mixed Scleroderma. The cases on record are few in number, but have much interest, as they are links connecting the circumscribed and diffuse scleroderma. Some cases commence as diffuse scleroderma, and the patches develop subsequently. Such was the classical case of Eliz. Nicholls,* first published by Addison; in this, the diffuse scleroderma was unilateral, subsequently morphœa developed on the opposite side of the face, producing the appearance of hemiatrophy, and other patches came on the trunk.

In Gaskoin's case, already alluded to, patches first came, to the number of thirty, which were confidently ascribed to a mental shock during pregnancy. There was some defect in sensibility in the patches, and much itching. A year or two later, she was exposed to cold winds, and œdema followed. This gradually disappeared, and at the same time the patches, which had been concave, became level, and atrophic scleroderma developed, spreading from the patches over the whole body surface, except the head.

In a third case, of Dyce Duckworth, there were two patches the size of a penny on the left thigh, and some time after, she got acute rheumatism, when the patches on the thigh spread and got hard, followed by scleroderma of both arms and legs.

Such a combination naturally produces an irregular distribution of the diseased areas, but the course, pathology, and treatment are the same as in the ordinary types of scleroderma.

Prognosis.—The majority, and perhaps all cases, ultimately get well, the patches leaving little or no trace of their existence; but the improvement, though occasionally rapid, is often very slow and almost imperceptible, and as a rule, only occurs after the patch has been stationary for a long time. Band cases are much less favourable than patch cases. Two or three years is the time required for a good many cases to get well, but many take much longer, cases of twenty years' duration being known, and we have no data to guide us in predicting, what course any particular case will run.

Treatment.—This is, unfortunately, very unsatisfactory; general measures of invigoration are desirable, as an improved general circulation is calculated to improve the local circulation. No known local means have been as yet proved to influence the disease for good. Galvanisation has been suggested, but it should be applied in the neighbourhood, and not over the patch, as anything that

* Plate xliv., *Syd. Soc. Atlas.*

irritates the diseased area, induces further thickening. Brocq has had good results in two cases with electrolysis. Needles were introduced into the border of the patch for fifteen to twenty seconds, with a current of five to ten milliampères; places at a distance from the one treated also improved. Shampooing the limb, or other region affected, might be also employed in these cases, as in diffuse scleroderma.

SCLEREMA NEONATORUM.

Synonyms.—Sclerema of the new-born; Scleroderma neonatorum; Induratio telæ cellulosæ; *Fr.*, Algidité progressive; L'endurcissement athrepsique (Parrot); *Ger.*, Das Sclerem der Neugeborenen.

Definition.—An induration of the skin, congenital or occurring soon after birth.

Like scleroderma, the name is indicative of induration, but the pathology and symptoms are very different, and it is advisable to use this term to mark the distinction. Under the term sclerema neonatorum, two distinct affections have long been confused, viz., "Sclerema" and "Œdema" neonatorum. Sclerema* was first fully described by Underwood† and Denman at the end of the last century, and soon after a French physician to the Hôpital des Enfants Trouvés observed the affection now known as œdema, but mistook it for Underwood's disease, and the error was perpetuated by other observers up to 1877, when Parrot‡ pointed out that they were distinct affections; a view, which is now generally acknowledged to be correct.

It may be primary or secondary, be present at birth, or come on within the first ten days of life, rarely later.§

* The first known case occurred at the Stockholm Hospital in 1718. According to the midwife, it was born alive, and died soon after birth. It is recorded by Uzembezius of Ulm, "Partus Octimestris Vivus Frigidus et Rigidus," in *Ephémérides des Cur. de la Nature*, chap. ix., obs. 30, p. 62, December 1718. Schwingius quotes the same case in his *Embryology*.

† Underwood, *Diseases of Children* (first ed., 1784, p. 76), calls it "hidebound."

‡ *L'Athrepsie*, by J. Parrot, p. 116 (Masson: Paris, 1887).

§ Three cases of a late chronic variety with paralysis are related by Angel Money, *Lancet*, October 27th, 1888.

The morbid process usually commences in the lower limbs, then spreads to the lumbar region, over the rest of the back, then to the chest, and then gradually over the rest of the body surface, so that it is generally universal by the fourth day; in a few cases, it begins on the face and spreads from above down, or again it may stop at some point short of completeness. At first, the skin is of a yellowish white or waxy-looking, and feels like thick leather, but the whiteness gives way to a slightly livid tint, and the skin becoming adherent to the subjacent parts, as well as rigid, it can no longer be pinched up, and pressure with the finger produces no pitting. The skin is tense, loses its natural wrinkles, is cold and hard, and since the limbs are fixed and the child lies with the eyes closed and motionless, except that very slight movements may be discerned in the thorax and face, it resembles a marble figure, or as if it were in a state of rigor mortis. So rigid is the body, that it may be raised with one hand, and will still retain the horizontal posture, without flexion. The face is rarely absolutely rigid, but the stiffness of the lips and cheeks prevent sucking and deglutition, and the mouth cannot be opened, which has given rise to the erroneous idea that trismus was present. The pulse falls to sixty a minute, the respirations to fourteen or even ten, and very shallow, and the temperature is several degrees below normal, the cry is reduced to a feeble moan, and what little vitality remains, is generally completely extinguished by the seventh day or even earlier. The congenital cases are either still-born or die within forty-eight hours.

Etiology.—The primary cases are either congenital or begin in the first few days after birth, without previous illness; the secondary cases are the sequel of causes which depress vitality, such as diarrhœa or other bowel complaints, or, pulmonary affections, such as atelectasis or pneumonia, with extensive collapse. Parrot regards it as one of the phenomena apt to occur with malnutrition from bad feeding and defective hygiene,—athrepsy, as he calls it in a word; and that this and over-crowding are predisposing causes. Underwood confirms this when he calls this essentially a hospital disease, at a period when hospital hygiene was much worse than at the present day.

Pathology.—The other writers having mixed up œdema and sclerema, their observations must be disregarded.

Langer, while distinguishing the œdematous cases, regards the other cases as fat sclerema, and ascribes the sclerema to solidification of the fat. He states that the fat of the new-born melts at 130° F. and is solid at 89°·6 F., while that of adults melts at 197° and solidifies below 32° F. This difference is due to the fatty acids being in excess of those in adults, as 31 per cent. to 10 per cent., and he states, therefore, that any cause which depresses the temperature below the solidifying point of the fat, will produce the disease. In such cases, there will therefore be no histological changes, but the theory is not entirely satisfactory, and scarcely accounts for the congenital cases.

On the other hand, Parrot regards the condition as a consequence of desiccation of the tissues from the drain of the diarrhœa, etc., and states that the anatomical changes are very definite and easily recognisable. He says :—

"The skin as a whole is notably diminished and thinned, but the horny layer is unchanged and only looks thicker, by contrast with the thinned rete and corium. The outline of the rete cells is scarcely visible, as the cells are compressed into a compact mass. The connective tissue corpuscles of the corium are well defined, and the connective tissue trabeculæ appear more numerous and thicker than usual. The islets of fat are smaller, and the contents of the vesicles so diminished as to show the nucleus or even to leave the vesicle empty. The vessels are much contracted, especially those of the papillary layer, in which their lumen is invisible. There is, therefore, a drying up of the skin, thickening of the layers, and some diminution of the fat, but there is no true sclerosis, nor serous infiltration." Ballantyne's* observations confirm Parrot's on the whole, except that there is, he thinks, an increase of the connective tissue, which subdivides the fat masses into smaller clumps.

Previous observers have either not found any changes, or described those of œdema neonatorum. The diagnosis, prognosis, and treatment will be considered in connection with œdema.

ŒDEMA NEONATORUM.

Synonym.—Œdema of the new-born.

Definition.—A subcutaneous œdema, with induration, affecting the new-born infant.

This is a very rare disease in England, but is more common abroad, and we owe its delineation chiefly to French observers.

* *Brit. Med. Jour.*, February 22nd, 1890, p. 403

The disease begins before the third day of life, with drowsiness; then the extremities, especially the legs, are swollen with œdema, cold and livid. The œdema spreads upwards to the thighs, the hands are next affected, and then the genitals and back. It is marked on the soles and pubes, which parts are red and hard. Like all œdema, the swelling is greatest in the most depending parts, but pitting is only produced by prolonged pressure, and the tissue feels hard or at least doughy.

The drowsiness becomes more marked, the pulse weak, the breathing short and shallow, and this feeble spark of life, is often put out by some complication, such as pulmonary affections, especially those with collapse, diarrhœa, or convulsions, and in a few instances, by parenchymatous nephritis.

Variations.—The œdema may begin in the back or face, and the swelling of the hands may follow immediately upon that of the legs. In very exceptional instances, there may be a high temperature instead of a low one, and a jaundiced hue may replace the lividity shortly before death.

Etiology.—It almost invariably occurs in infants which are premature, or of feeble vitality from some other cause, and atelectasis is present in many instances. Bad feeding of the mother and child, and exposure to cold immediately after birth, are also fruitful causes of the disease.

Pathology.—This is not known, but presumably the condition is directly due to the feeble circulation and defective aeration of the blood, at a period when vital resistance is always slight. But this does not adequately explain the whole process. Léon Dumas* considers it analogous to phlegmasia dolens, and a thrombus in both femoral veins has been discovered in one case. Ballantyne† considers it comparable to adult anasarca, and that it may be of renal, cardiac, or pulmonary origin.

Anatomy.—There is invariably yellow serous effusion into the cellular tissue, and the fat is of remarkable density and of a yellowish-brown colour. The liver is very large and the lungs congested, and Ballantyne found nephritis.

Diagnosis.—Sclerema and œdema possess many factors in etiology and all the signs of depression of the vital organs in common, but they differ in the following points:—In sclerema,

* Quoted in *Lancet*, November 26th, 1887, p. 1081.

† *Loc. cit.*, *Lancet*, 1890.

in the vast majority the disease is general; the skin is tense, hard, and waxy in colour at first, unpittable, and adherent to the subjacent tissue. Œdema is less general, the skin, markedly livid from the first, is not so hard, pits with firm pressure, can be pinched up, and the swelling is always greatest in the most dependent parts. In sclerema, the joints and jaw are stiff; not so in œdema, or only in a moderate degree. The early age of their occurrence will distinguish them from scleroderma, of which no case under thirteen months has yet occurred. Barlow,* from a case of sclerema under his care, which was partial in its distribution and recovered, considers that the colour of the patches in sclerema is "bluish-red or of a deep copper tint, whilst in scleroderma, either the colour does not differ from the healthy skin, or is of a whitish tallowy character."

This distinction does not hold good for the majority of cases, for as Underwood pointed out in his original description, the skin in sclerema is of a waxy or yellowish-white. But for the absence of pitting, Barlow's case appears more like œdema.

Prognosis.—Sclerema is invariably fatal, if it is complete, the infant surviving for only a few days; but in a few cases it is incomplete,† and then recovery may take place. In œdema, the prospect is not quite so hopeless, though always serious, and the duration is usually greater than that of sclerema.

Treatment.—The indications are the same for both, viz., to raise the body temperature to the normal, and to administer nourishment. For the first, the child should be wrapped in cotton-wool and surrounded by hot-water bottles in a warm room; or, where practicable, a box apparatus, on the principle of an incubator, would be advantageous. The child, being unable to suck, must be fed either by passing a small stomach pump tube through the nose, injecting the aliment (such as peptonised milk and white wine whey), or by Scott Battams' more simple plan of injecting the food with a glass syringe, to the nozzle of which an indiarubber tube is attached, which is passed into the pharynx. Friction of the limbs with oil, rubbing towards the heart, is useful in the improvement of the circulation.

* *Clin. Soc. Trans.*, vol. xvi. (1883), p. 262.
† Barr's case, *Brit. Med. Jour.*, May 4th, 1889.

ELEPHANTIASIS.*

Deriv.—ἐλέφας, an elephant.

Synonyms.—Elephantiasis Arabum; Elephant leg; Barbadoes leg; Bucnemia tropica; Morbus elephas; Pachydermia; Spargosis; Phlegmasia Malabarica; Hernia carnosa; Elephantiasis Indica; *Fr.*, Éléphantiasis; *Ger.*, Elephantiasis.

Definition.—A chronic endemic or sporadic disease, consisting of a hyperplasia of the skin and subcutaneous tissues, due to blocking of the lymphatic channels, and resulting in enormous hypertrophy of the affected part.

The term elephantiasis has been used as a generic term for diverse diseases, such as lepra (elephantiasis græcorum), dermatolysis, the huge symmetrical lipomata which grow about the neck chiefly in chronic alcoholics, as well as the disease under discussion, with the single feature of the enlargement of some part, as the only link between them; but it is better to restrict the term to the one affection for which it is fairly appropriate, and it will not then be necessary to use any specific addition, such as Arabum.

Symptoms.—The disease is endemic or sporadic, differing in the initial and intercurrent symptoms, but practically identical as regards the ultimate result to the affected part; the sporadic form alone occurs in England, and is one of the uncommon forms of skin disease.

As seen in tropical or sub-tropical climates, where it is endemic, the onset is often attended with severe febrile symptoms, sometimes termed "elephantoid fever." There are intense lumbar pain,

* *Literature.*—Vincent Richards on "Elephantiasis Arabum" in Fox and Farquharson's *Endemic Skin and Other Diseases*, App. VIII., p 126 (Churchill: 1876). Lecture on "Elephantiasis Arabum," by Sir Joseph Fayrer (March 1879); also *Path. Trans.*, 1879, and "Relations of Filaria sanguinis hominis to the Endemic Diseases of India" (a good *résumé*, with numerous references), *Lancet*, February 8th, 1879. Writings by P. Manson in eighteenth issue of *Chinese Med. Rep.*, and many previous papers on filaria disease, showing life-history of the parasite, and relation to E. Arabum and other diseases. *Die elephantiastischen Formen*, F. Esmarch and D. Kulenkampff (Hamburg: 1885),—a richly illustrated monograph, in which elephantiasis is used in its widest sense for numerous hypertrophic diseases, congenital and otherwise. *Elephantiasis Arabum*, Hans von Hebra (Wien: 1885).

nausea, or even vomiting, and shivering, followed by high fever, and this again by sweating. If the leg be attacked, there is erysipelatous-like redness and rapid swelling, with painful tension, from the great infiltration into the cellular tissue, and when the lymphatics are much involved, there is a clear or milky discharge. If the scrotum is the part affected, vomiting is nearly sure to be present, with intense pain in the groin, testes, and along the spermatic cords, which are swollen, with external redness, and the acute formation of hydroceles, while the abdominal rings may be so much stretched by the swollen cords, as to lead to hernia, after the subsidence of the swelling (Fayrer). Under suitable treatment, the febrile symptoms subside, leaving the limb slightly larger than before. In some cases, although the periods of quiescence last for months, the paroxysms are severe; while in others again, the paroxysms are of slight intensity, and at long and irregular intervals, and the growth is proportionately slow and less developed. In three-and-a-half per cent. there was no fever, and in many, the enlargement of the axillary and inguinal glands preceded the fever. In rare instances, there is continuous increase without constitutional disturbance. In this country, an attack, or repeated attacks, of erysipelas may be the starting factor, and there will then be corresponding febrile symptoms in proportion to the extent and intensity of the erysipelas; but in others, the development is very slow, and constitutional symptoms are absent. No symptoms corresponding with elephantoid fever form a part of the morbid phenomena in this country, nor are cases of rapid or very extreme development seen here.

When pretty fully developed, the limb presents the following aspect, taking the leg, which is the most common position, as the type. The limb below the knee is enlarged to three or four times its normal girth, and although some œdema is present, it requires strong pressure to produce pitting, and the greater part of the increased bulk is solid, and generally extremely hard and unyielding.

Owing to the swelling of the tissues on each side of the natural folds, these form deep sulci, especially marked at the bend of the joints, and the swollen parts being in contact, the surface is covered with a moist, slimy, and offensive fluid, consisting of decomposing sweat, sebum, and sodden epithelium. Reddish or deep brown pigmentation of the whole limb, deepest at the lower part,

is generally present. The surface of the limb may be quite smooth, but is more often irregular, with varicose lymphatics, which form worm-like projections or deep-seated vesicular protrusions upon it; or there may be patches of hypertrophied papillæ, which form soft, warty, elevated plaques, covered with thick horny or sodden epidermis; these are especially common on the dorsum of the foot.

As a rule, there is no pain or other sensory disturbance, except during the febrile exacerbations, or from complications, of which the most common is eczema, chiefly seen in the smooth limbs, accompanied by much itching; varicose ulcers also are frequent. In the inflammatory attacks, the pain, heat, and tension may be very great; sympathetic gland irritation is generally present, and the dilated lymphatics are tender and painful, and so turgid as often to rupture spontaneously in various parts of the limb, or to be opened by the patient himself, to obtain relief from the tension. The discharge is a clear or milky chyle-like and coagulable fluid, the loss of which may be a serious drain on the patient's vitality; while the weight or bulk of the limb is often so great an inconvenience, that the patient is glad to have it removed.

Variations.—While in this country, the vast majority of cases affect one leg, very rarely both, in countries where it is endemic both legs are often involved, and if only one, the right more often than the left; the scrotum and penis, or the labia and clitoris, are only a little less frequently affected. Even in England, however, other parts are occasionally involved; thus, I have seen it in the arm, forearm, and hand, in a lad who had had repeated attacks of erysipelas;* in both ears in a woman who had suffered from eczema of and behind the ears, off and on for twenty years; in the scrotum, in a man who had not been abroad in a case of Dr. S. Mackenzie, and in a case of my own, where the man had lived in Smyrna; in the lips—chiefly in the upper one, in a male patient of Mr. Barwell, for which he tied the facial arteries without much benefit; while Hebra and Kaposi mention similar enlargement of the cheek and nose; and in India, Vincent Richards saw the whole left side of the face,† and Ghosal, the female breast affected. In

* A well-marked case of hand and arm elephantiasis with papillary hypertrophy is published by Hoyer in the Buffalo *Med. and Surg. Jour.*, May 1886, with woodcut.

† Barwell, in *Path. Trans.*, vol. xxxii. (1881), p. 282, published an extreme case of congenital right-sided hypertrophy of the face.

Felkin's* case, a Eurasian woman, the upper segments of all the limbs and the whole trunk, except a small median portion back and front, were involved. It began in early life. Considerable improvement was produced by rest, massage, the constant current, and tonics. In most of these cases the surface is smooth, though often highly vascular. Another vascular form is *elephantiasis telangiectodes*, applied by Virchow to rare cases of congenital origin, but later development, in which there is nævus development of the deep vessels, with overgrowth of the tissues from excessive nutrition. There is but little external change except enlargement, but the limb has a lobulated feel, and firm pressure empties the enlarged vessels temporarily, like squeezing a sponge. I examined and photographed a case of this variety by the kindness of Dr. Savill.† The condition approaches fibromatous enlargement in some respects. Lymphangiectodes has been associated with this condition in one or two instances.

It must be borne in mind that there are all grades of elephantiasis, from moderate thickening of the skin and subcutaneous tissue up to enormous enlargement, and similarly great variations in aspect exist, according to the papillary hypertrophy or lympathic and blood-vessel varicosity, and their relative proportions.

For example, the scrotal tumour may be so large as to hang quite down to the ground, and some of them have weighed as much as a hundred and ten pounds. On the other hand, in the form known as "**lymph tumours**," "**lymph scrotum, or nævoid elephantiasis**," the enlargement is only moderate, but the lympathic vessels and spaces are much dilated, make the surface irregular, and during the paroxysmal febrile attacks become turgid, and may rupture, discharging milky or serous fluid.

The **persistent œdema** of the face seen in the subjects of recurrent erysipelas or lymphangitis is really only an inchoate form of elephantiasis. It has a superficial resemblance to myxœdema, but lacks the complex symptoms of that disease.

Acromegaly ‡ is a somewhat allied condition; there is symmetrical overgrowth of all the tissues, including the bones. The

* *Edin. Med. Jour.*, 1889, p. 779.

† *Lancet*, November 8th, 1891 (Hospital Mirror).

‡ See leaders in *Lancet*, April 28th, 1888; *Brit. Med. Jour.*, April 20th, 1890; *Ill. Med. News*, March 2nd, 1889, and Jan. 4th, 1890. Pierre Marie gives further observations in *Le Progrès Médical*, March 16th, 1889; and

face and limbs are especially affected. Enlargement of the pituitary body has been found several times. In *leontiasis ossea* and *osteitis deformans*, the bones alone are enlarged.

Etiology.—Elephantiasis attacks both sexes at all ages, but is more common in men, as three to one (Waring), and in adult and middle life. It may also be congenital, as in Spietschka's * case, and in most cases of E. telangiectodes. Nonne † published four congenital cases affecting both limbs. They were all from the same family, in whom nine members through four generations were affected. It is also much more common in the dark than the fair races, and is endemic in India and the Malayan Peninsula, in China and Japan, in Egypt and Arabia, in the West Indies and parts of America, while it occurs sporadically in all parts of the world, except in the Arctic or Antarctic regions. Damp malarious regions in the neighbourhood of the sea are especially favourable to its development, and Manson thinks its distribution is identical with that of the mosquito; certainly removal from the endemic area is always advisable, and arrests the progress of the disease, which returns if the patient goes back to the malarious district. Bad living is supposed to be an important predisposing element. V. Richards found that in two hundred and thirty-six persons, in 73 per cent. one or both parents were affected; but from its pathology, tropical elephantiasis is not likely to be hereditary, and the coincidence is probably due to their being exposed to the same influences. Similarly, leprosy and this form of elephantiasis have no relationship, but both occurring in similar climatic conditions, they have been found in the same individual—as often as 6 per cent. in six hundred and thirty-six cases (Vincent Richards).

Pathology.—The disease is consequent upon occlusion of the lymphatic channels of the part affected, independent of the cause or nature of the obstruction, and whether it is at the trunk or periphery of the lymphatic circulation.

In the endemic cases, the researches of Manson, Lewis, Bancroft, and others, go to prove that the obstruction is due to the parent worm, filaria sanguinis hominis, blocking up the main lymphatics of the part. Manson's account is as follows: "The parent worms

there are several illustrated cases, showing all the principal features, in the *Clin. Soc. Trans.*, vol. xxiii., 1890.

* *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 741, illustrated.

† Virchow's *Archiv*, Bd. cxxv., with photographs.

live in the lymphatic trunks, discharge their ova into the lymph stream, by which they are carried to the glands and arrested there, until they hatch; the embryos then enter the general circulation along the lymph vessels, residing in some organ during the day and circulating in the blood at night; mosquitoes abstract them from the blood and act as the intermediary hosts, and transfer them to water, to reach man again when he drinks the contaminated fluid. Lymph scrotum, as well as other affections, such as chyluria, varicose glands of the groin, with hæmatozoa, are produced by partial obstruction of the lymphatics, owing to the ova or embryos producing in some cases, obstruction of the lymph circulation in the glands, directly, by their size, or indirectly, by exciting inflammation. Varicosities of the veins, glands, and different lymphatics result, and the lymphatic circulation is carried on by anastomoses, enabling the embryos therefore to get into the blood; but where the obstruction is complete, either the vessels are so distended that they rupture, and lymphorrhagia of a more or less persistent character results, either from the scrotum or leg, with varicose glands and filaria embryos in the glands, but none in the blood; or the lymphatics do not rupture, there is complete stasis of lymph, with accumulation on the distal side of the glands, with solidification of the tissues producing elephantiasis; here again, no embryos are found in the blood or gland lymph, as they cannot get past the glands, and the parent worms, also, die from the accumulation of lymph and embryos."* Interesting as this is, however, it is only one of many causes of obstruction to the lymphatics; in sporadic cases, in temperate climates, the same result is brought about in a different way. Erysipelas, either in a severe and diffuse cellulitis, or from repeated attacks, is one of the most common causes of lymphatic obstruction. Sabouraud† examined and cultivated the serum during the attacks of lymphangitis of a case of E. nostras, and invariably found streptococci of erysipelas, but the cultures in the intervals remained sterile. Phlegmasia dolens is another disease, which may occlude the trunk lymphatics and lead to elephantiasis; while long-continued, or repeated attacks of eczema

* Manson finds that the embryos of three species are to be found in the blood stream: the filaria sanguinis hominis of Lewis and the F. S. H. major and minor. The last two have been found in Africans; the first in Asiatics and Americans (*Lancet*, January 3rd, 1891).

† *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 592.

of the leg are responsible for a certain number, though they are seldom extreme instances of the affection; in this form, the peripheral lymphatics must be the first to get obstructed. In some cases again, the pathological factor cannot be recognised, and we know only the result of the obstruction. Favouring influences are a pendulous condition of the part, *e.g.*, flabby breasts, and in the case of the lower limbs want of exercise, increasing the natural difficulty of the circulation in the dependent limb; in short, anything hindering the venous as well as the lymphatic flow.

Anatomy.—This has been studied by Virchow, Kaposi,* myself, and many others, with general agreement. On section, the surface is yellowish-white, fibrous, and fatty; in some parts gelatinous, in others, white, or yellowish-white lymph exudes on pressure. The chief change is in the subcutaneous tissue, which is enormously hypertrophied from increase of fibrous tissue in a more or less developed stage, most of it being distinctly in fibrous bands or networks, while other parts are gelatiniform, with soft, fine fibres, and many nuclei and cells. This is contained for the most part in loculi composed of more advanced fibres; the corium is increased in thickness, but in a less degree; the epidermis is also proliferated, the skin changes being most marked where there are papillary growths. Both blood vessels and lymphatics, and often the nerves, are enormously enlarged, and in advanced cases, all the structures are red, the muscles undergoing fibro-fatty changes, the fascia being much thickened, and the bones enlarged, either regularly or irregularly, into exostoses.

Diagnosis.—When the disease is fully developed, the enormous enlargement, the hardness with firm œdema, and, if the surface is affected, the varicose lymphatics and papillary hypertrophy afford no room for error. The "elephantoid fever," in countries where it is endemic, should excite suspicion in the early stage; it differs from remittent fever in the cold and hot stages being very intense, lasting four or five days, while the intermissions vary from a fortnight to several months. In this country, if a part is subjected to repeated attacks of erysipelas, more or less connective tissue hypertrophy is pretty certain to ensue.

Prognosis.—In the early stage, if the patient can be removed from the endemic district, the disease may be checked, and even in sporadic cases much may be done to check it, but there is no absolute cure, except when the disease is so situated that the overgrowth can be removed, as in elephantiasis of the genitalia.

The enormous size that may be reached has already been

* Hebra, *Syd. Soc. Trans.*, vol. iii., p. 140.

alluded to, but life is rarely endangered, though much burdened by the "too, too solid flesh," which may clog the patient for any period up to forty years or more.

Treatment.—During the fever of endemic cases, Fayrer recommends saline aperients, with opiates to procure sleep, and locally, fomentations and soothing measures generally, followed by quinine, or, if there is much anæmia, iron; change of climate is, however, of the first importance,—to Europe, if the victim be a European, or, at least, away from the endemic neighbourhood. The scrotal tumours may be removed by the knife; even those over one hundred pounds have been successfully removed, dissecting out the penis and testicles by incisions along the course of the cords and dorsum penis, and taking away the whole of the affected skin, otherwise recurrence is likely to take place. The tumour should be drained of blood for some hours before operation, and then an elastic bandage applied, and a ligature put on at the base, as the number and size of the vessels are very great. The penis and testicles get covered in with cicatricial tissue, in from two to four months. In the leg, an attempt has been made to starve the growth by ligaturing the femoral artery, but has seldom been permanently successful, and no one advocates this treatment now, the more so, as compression of the main artery is fully as useful. V. Richards strongly recommends this, combined with an exclusively milk diet; but most relief can be afforded by Martin's indiarubber bandage, carefully and firmly applied during the day, and a light pervious one at night; this relieves the œdema, and, except in extreme cases, reduces the limb so much as to enable the patient to get about with comparative ease; of course, this treatment is only palliative, as the limb, if left alone, speedily regains its previous size. Various other means have been recommended, absorbent remedies, such as iodine and mercury, the latter as a Scott's dressing bandaged on, having been most highly spoken of, but the improvement is only temporary, and probably due chiefly to the rest and bandaging; indeed, the pathology of the disease suggests the futility of all such measures. When the lymphatics are very turgid, during the febrile exacerbations, opening some of them gives great relief by diminishing the tension; at the same time, it is almost equivalent to bleeding the patient.

ANOMALIES OF PIGMENTATION.

Pigmentation of the skin may be either excessive or deficient, and each of these anomalies may be congenital or acquired. Congenital excess is seen in pigmentary nævi, congenital deficiency in albinism.

Acquired excess is idiopathic or symptomatic, and may be either in small spots, as in lentigo, or diffuse or in large patches, as in chloasma. Acquired deficiency is seen mixed with excess in leucoderma, and as a symptomatic condition in morphœa and other diseases.

In all the above cases, the excess of pigment is only an exaggeration of a normal process, and is derived from the colouring matter of the blood. Pigmentation of the skin may also be produced by matter foreign to the normal condition of the blood, such as bile, nitrate of silver, arsenic, picric acid, etc., or by colouring matter rubbed into the skin, as in tatooing, chrysarobin applications, etc. The hypertrophic and atrophic pigmentary anomalies are placed in juxtaposition for the sake of convenience.

Pathology.—We know very little of the mode in which general pigmentation of the skin is produced. The study of Addison's disease has, however, made it highly probable that whenever the abdominal sympathetic, especially the solar plexus, is irritated, general pigmentation is likely to ensue, but how, or why this is brought about, is not clear. With regard to local pigmentation from irritants, or as a sequela of skin eruptions, it is a direct consequence of hyperæmia, active or passive, and the exudation or extravasation of blood-colouring matter. Ehrmann's* studies furnish the following explanation of the process:—

As is well known, the pigment is deposited in the rete mucosum, and almost exclusively in the lower layers; it may, however, often be seen in the upper layers of the corium as well, on its way from the vessels to the rete, where it is deposited in the deeper layers, the cells of which, at least in frogs, possess amœboid prolongations, and also in the corium, there are peculiar movable cells, which send branches between the epidermal cells. It is by these protoplasmic channels that the pigment is transferred from the corium to the deeper layers of the rete, and thence to the higher layers of the rete cells.

* *Allg. Wien. med. Zeitg.*, No. 29, 1884, and *Viertelj. f. Derm. u. Syph.*, Heft iii. and iv., 1885, and Heft i., 1886.

This process can be traced in amphibia because they possess a special layer of these pigmented, mobile, connective tissue cells, and it was observed that where the epidermis was most pigmented, the connective tissue cells immediately beneath were almost pigmentless, and hence it is evident that they had transferred their pigment to the rete cells.

Unna * doubts the existence of these special cells, admitting the presence of pigmented connective tissue cells. He thinks the supposed branches are simply lymph channels, and that the pigment is conveyed by them into the lymph stream, first to the spaces between the cells and then within them, the pigment being especially abundant at the distal pole of the nucleus; thus, he agrees that the pigment is derived from the blood, and is conveyed from the cutis. Few accept Jarisch's view, that the pigment is formed by metabolism of epidermis cells by regressive metamorphosis, and travels to and from the corium by lymph channels. Kaposi, however, attributes a pigment-forming function to the lowest cells of the rete.

Ehrmann explains the mechanism of vitiligo or leucoderma as follows:—

While pigment is duly formed in the corium, owing to an absence of the transferring cells, it cannot reach the rete, but in albinism there is a total absence of pigment-forming cells. In vitiligo, the untransferred pigment in the corium is partly reabsorbed, partly transferred to the adjoining normal skin; hence the excess of pigmentation that is generally observed on the borders of the white patch. What leads to the atrophy of these pigment-transferring cells, and why in progressive leucoderma an increase of pigment precedes its disappearance, is not explained.

The pigmentation of hair is closely analogous. The pigment-forming cells are situated in the hair papilla, *i.e.*, deep in the corium; connected with these, branched cells, similar to those in the rete, are situated in the hair root, and send their prolongations between the epidermis cells of the hair, and the pigment is by their means transferred to the upper part of the hair. In addition to the pigment cells of the papillæ, there are others in the matrix, and these two sets are connected by intermediate ones.

* *Das Pigment. der Haut. Monatsch. d. Derm.*, vol. viii. (1889), No. 8,—a critical review of the whole question. See also discussion at Berlin Internat. Cong., 1890.

Canities, or white hair, is practically leucoderma of the hair, and, as in that disease, while the pigment cells of the papilla are still present in all cases except in senile atrophy, both the transferring cells and also the pigment-forming cells of the root are absent, and hence it would appear that here also, it is not the formation of pigment that is defective, but the means of transmission. According to Riehl, the variations in colour of the human hair are dependent not on the different amount of air in the hair, or the colour of the individual hair cells, or the amount of sebum on the surface, but on the varying quantity of pigment in the horny substance of the hair.

LENTIGO.

Deriv.—*Lens*, a lentil.

Synonyms.—Freckles; Ephelides; *Fr.*, Lentigo; *Ger.*, Sommersprosse.

Definition.—Circumscribed spots or patches of pigment of small size, which occur chiefly on the face and hands.

Symptoms.—This well-known affection begins usually in the second decade of life, and consists of spots of pigment, roundish or irregular in shape, pin's head to split pea in size, and yellowish to yellowish-brown or umber, sepia black, and occasionally greenish, in colour. They occur chiefly on the face, especially at the root of the nose and adjoining part of the cheeks, on the back of the hands, and less frequently on covered parts, such as the forearms and arms near the elbow, the back, buttocks, and penis (Hebra). There may be only a moderate number about the nose, or the whole face and neck may be thickly peppered with them; and in bad cases, large, dark, irregular patches are mixed up with the more numerous small kind, and the affection is then very conspicuous and disfiguring. A less common form is where a dozen or two discrete, deep-tinted, pea-sized spots are scattered irregularly over the face, without any of the smaller ones interspersed. Freckles generally appear first in the summer, sometimes suddenly, and are always most conspicuous at that season, while in the dark days of winter they fade away more or less, reappearing in the sunny season.

When similar spots, whether congenital or acquired, occur

either on covered or uncovered parts independent of seasonal change, they are popularly called "**cold freckles,**" and some authors reserve the term "**lentigo**" for these, and give the small ones only, which are most conspicuous in summer, the title of **ephelides**; but the distinction is futile.

In a patient of mine, a young lady æt. twenty-six, pigment spots from a millet to a hemp seed in size commenced seven years before on the thighs, and had continued to increase in numbers until there were many scores, chiefly on the thighs and front of the trunk; some months before I saw her, a few appeared on the sides of the face. There were anæmia and constipation, and she held a post of responsibility, but there was no other traceable cause.

Robinson of New York relates the case of a woman æt. twenty-nine in whom lentiginous spots not larger than a pin's point began in childhood, and developed into a patch occupying one side of the forehead only.

As a symptomatic condition, it may be seen as a prominent feature of atrophoderma or xeroderma pigmentosum, beginning then in the first or second year of life, while it also forms a part of another form of atrophy of the skin, that of old age, occurring then in covered parts, and I have seen it following eczema in senile persons.

Etiology.—This affection is rare before eight years old, but Wilson says it is sometimes congenital, appearing soon after birth and continuing throughout life, and I have also seen* cases in which this account of it was given; but this form should be classed with pigmentary nævi. The ordinary variety often disappears as old age approaches. Both sexes are equally liable to it, but it is much more common in those of fair complexion, and red-haired people are seldom free. At the same time, freckles may be seen in dark-complexioned individuals, and even in mulattoes.

The chief exciting cause, by almost universal consent, is sunlight, direct or diffuse; hence their prevalence in summer, perhaps because pigment activity generally, is greatest in strong sunlight.

Hebra rejects the sun theory, because they may occur in covered parts, but probably there are other causes also which we are unable to trace, and it may not be essential that the sun's rays fall directly on the affected region. Defective nutrition is the chief cause of symptomatic lentigo.

* Miss H., *Private Notes*, vol. ii., p. 264.

Pathology.—Lentigo differs from other pigmentation only in being situated in a circumscribed portion of the rete.

Anatomy.—Moritz Cohn* of Hamburg has investigated the anatomy of ephelides, lentigines and nævi pigmentosi, and finds that in ephelides the cutis and vessels are normal, the only change being the presence of pigment in the basal layer of the epidermis, while in lentigines and nævi the pigment is always in all the layers of the epidermis and in the cutis, down to the sub-papillary layer, and that the vessels of the cutis are always hyperplastic and the endothelial nuclei swollen.

It is evident that he uses the term lentigines for those congenital pigment spots which I have already pointed out are really pigmentary nævi.

Treatment.—This will be given under Chloasma.

CHLOASMA.

Deriv.—χλοάζω, to be pale green.

Definition.—Chloasma is a generic term for both the irregularly shaped and sized patches of yellowish, brownish, or blackish pigmentation which occur chiefly upon the face, and for the more diffuse discolorations, which may occur anywhere or everywhere upon the body.

Symptoms.—The only change in the skin is in the colour of it. When in patches, their borders are fairly well defined. Though oftentimes round or oval, they are infinitely varied in size and shape, and while the tint is most commonly fawn-coloured, yellowish-brown, or brown, it may deepen into bronze or black (**melanoderma**).

In the diffuse form, the borders generally merge imperceptibly into the normal skin, and although the pigmentation may be very extensive, even to universality, certain parts of the body, chiefly those that are normally pigmented, are generally deeper in tint than the rest, viz., the axillæ, nipples, umbilicus, pubes, and genitalia.

Etiology.—The idiopathic form is generally the consequence of some external irritation, and is generally localised to the part irritated. It may, however, arise without apparent cause. The principal causes are :—

* *Monatsh. f. p. Derm.*, vol. xii. (1891), p. 119, illustrated.

Counter-Irritants, such as sinapisms,* vesicants, etc., which may be followed by pigmentation, generally of a brownish hue, on their site of application. I have also seen deep pigmentation follow an abrasion, a phenomenon of the same class, while the heat of the sun produces the well-known sunburn, and artificial heat discoloration of the part exposed, sometimes in rings (see Erythema ab igne), as may be seen on the legs of stokers or others subject to similar influences. Friction, pressure, or scratching, if long continued, also produces pigmentation, which may be both extensive and permanent. This is seen in its highest degree in severely itching diseases, like prurigo and phthiriasis, as in tramps † and aged people, constituting the **pityriasis nigra** of Willan. In two cases recorded by Thibierge, the oral mucous membrane was also stained. A case ‡ of permanent pigmentation in a young man, following exposure to great cold in Sweden, came under my notice some years ago. (See Acanthosis nigricans.) Lees showed a child, æt. eleven, at the Dermatological Society, in whom, when six months old, small red spots appeared, and left pigmented spots, which increased in size, the longest being two inches by one ; they were still increasing in number and size, and were scattered over the neck, trunk, and limbs. Gautier § records a case of a boy of six in whom pigmented patches from sepia to almost black began to form at the age of two years, and were distributed all over the body ; precocious maturity of the genital organs preceded and accompanied the pigmentation, but the hair of the head was ill developed.

Symptomatic Chloasma may be a sequel or concomitant of various skin eruptions, may be consequent on, or sympathetic with, physiological or pathological conditions of the uterus, or due to cachexia.

As a sequel to various lesions of the skin, independent of pruritus, it follows syphilides, varying from fawn to dark brown, and often of long duration ; lichen planus, in which it is very

* Dubreuilh published a case which extended beyond the site of the sinapism, and went all round the body.—*Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 76.

† Greenhow published cases of this under the name of "Vagabond's disease simulating Morbus Addisoni," in *Clin. Soc. Trans.*, vol. ix.

‡ *Clin. Soc. Trans.*, vol. xiv., p. 152. A somewhat similar case, also following exposure to cold, is recorded by Carrington in the same volume.

§ Abs. *Ann. de Derm. et de Syph.*, vol. i., 1890.

deep, almost black sometimes, and also lasting long; after erythema marginatum and other forms of erythema exudativum, where it is often marked, but not, as a rule, very persistent.

As a concomitant symptom, it may be seen in senile atrophy of the skin, in which it is diffuse; in scleroderma, both diffuse and circumscribed, in which it is generally in streaks or patches; in fibroma, in which it is in large blotches on the trunk, but on the face it may be diffuse; in the pigmentary syphilide, where it is limited to the neck and associated with leucoderma; and in rare instances, with psoriasis and pityriasis rubra. Below the knee, pigmentation is easily produced by slight causes, especially when there are varicose veins. After a slight injury or inflammation, blood-colouring matter is effused in the tissues, either by transudation or by capillary extravasation. This is seen in its most extreme form where eczema has supervened on bad varicose veins, leaving the tissues round the ankle and infiltrated almost black. The **orange and café au lait** patches so often seen in the lower part of the legs are due to capillary rupture, doubtless consequent on an antecedent lesion, morbid or traumatic, though it is often so trivial as to escape notice.

Chloasma Uterinum may be a physiological or sympathetic pigmentary disturbance. It is seen on the linea alba, the nipples, cheeks, and forehead, of pregnant women until after parturition, and occurs in others also, who suffer from uterine irritation. The colour is a dirty yellow or brownish tint, defined or shading into the surrounding skin. Its most common and characteristic position is on the forehead, where it forms a continuous or interrupted patch, with irregular borders, between the hair and eyebrows, expanding at the temples, but it may be almost all over the face, and in rare instances on the trunk and limbs. It may occur at any time from puberty to the climacteric, but in single women is rare before thirty. A singular variety is recorded by Swayne in a woman, in whom during the last three months of three successive pregnancies the face, arms, hands, and legs were spotted like a leopard, and remained so until after her confinement. In a lady * æt. thirty, sent to me by Dr. Saltzmann, the colour got deeper with each successive pregnancy, until the whole face, neck, and bend of the elbow, were bronzed as if she had been exposed to a tropical sun, while there were patches of a darker, almost

* Mrs. H., vol. C., p. 27.

lack hue on the forehead, temples, and round the mouth. In woman æt. forty-five, under my colleague Dr. John Williams or ovarian tumour, four pigment spots, from one-third to three-uarters of an inch across, developed slowly and symmetrically just bove the umbilicus. Kaposi * knew a lady with a pigmented mole wo inches square on the side of the neck, which became quite lack at each pregnancy, and was the first recognisable sign of her ondition.

Discoloration of the skin is common in many cachectic states. hus in secondary syphilis, there is a very characteristic earthy ue of the face. In tubercular leprosy of Europeans, besides arious discoloured patches on the body, there is a general ronzing or livid brown tint late in the disease, and a fawn or ellow colour in the early stage. In Addison's disease, there ; the well-known general bronzing of the skin, extending to ie mucous membranes. In cancer, there is a sallow lemon nt.

In Graves' † disease, pigmentation, either freckle-like or patchy, not uncommon in the orbits and in those parts of the body here there is normally some pigment; it may be universal. pender draws attention to the frequency of pigment patches in ssociation with rheumatoid arthritis; sometimes it is lenti-inous, in others, in large patches.

In abdominal tuberculosis, Guéneau de Mussy has noted a igmentation of the face like that of chloasma uterinum; sometimes esides the nose and cheeks, the backs of the hands and even other arts may be discoloured almost like Addison's disease. He has so seen it in four cases of cirrhosis with ascites, and in one cancer of the stomach. I have also seen it in a lady who uffered from extreme chronic constipation, but with no uterine mptoms. In malaria, the skin may be of yellowish or chestnut own to black colour, chiefly after long exposure to its influence, it it occurs in an extreme and acute development in the per-cious forms, as in the "Black disease" of the Garo Hills in ssam.‡ In the case of a man suffering from multiple melanotic

* *Loc. cit.*, Berlin International Congress.

† A case is figured by Drummond like leuco- and melanoderma in *Brit. ed. Jour.*, May 16th, 1887. See also H. W. G. Mackenzie in *Lancet*, ptember 13th, 1890, pp. 5-46, with many references.

‡ Dr. Clark in *Indian Medical Gazette*, and full abstract in *Brit. Med. our.*, November 29th, 1884.

sarcomata, Wickham Legge * observed nitrate of silver-like pigmentation on the face, neck, and hands, but very little elsewhere.

Diagnosis.—The diagnosis can seldom offer any difficulty, except as regards the cause of the discoloration, and this can be identified by a knowledge of its etiology in general and the modifications produced under various circumstances. In a few cases, pigmentation on the skin may simulate pigmentation in it, as is seen in that produced by various pigments by hysterical women and malingerers. These can always be washed off with a weak solution of chlorinated lime, if not with soap and water.

The discoloration of chromidrosis can also be washed off with spirit of chloroform or æther.

Various fungi may flourish and produce discoloration on the skin, such as that of *tinea versicolor*, *erythrasma*, and the Mexican disease *caraati* or *mal del pinto*. On scraping off some of the skin and placing it under the microscope, as directed under parasitic diseases, the spores or mycelium can be readily detected in these forms.

Prognosis.—This depends, as a rule, on whether the cause is still in activity and upon the length of time it has been in operation.

Pigmentations that are sequelæ or concomitants of eruptions and those due to irritation generally fade gradually away, except when on the lower part of the leg, and varicose veins are present.

Treatment.—Careful investigation into the cause must be made, and when this is removable by appropriate measures, the pigmentation will in many cases slowly disappear. It is chiefly for pigmentation on the face or other exposed part that advice is sought, especially for lentigines and chloasma uterinum. Assuming the cause to have been obviated, local applications may be of service, and these are chiefly such as remove the epidermis more or less completely.

Unfortunately the relief is too often only temporary, the pigmentation gradually returning. Corrosive sublimate in from half to five grains to the ounce of almond emulsion, dabbed on several times a day, is one of the best applications, the strength being adapted to the sensitiveness of the patient's skin, and two grains is the maximum that should be used until that is ascertained. Hebra recommends a 1 per cent. solution of hydrarg. perchloridi to be applied on lint cut to the exact size of the discoloration,

* *Path. Soc. Trans.*, vol. xxxv. (1884), p. 367, with coloured plate.

and kept constantly wet with the solution, for three or four hours (care must be taken to apply blotting paper to the edges of the lint, as the solution is apt to get dangerously concentrated there), vesication ensues, the raised epidermis is cut away, and the raw surface beneath dusted with starch powder. The remedy is severe and not always permanently successful. Other formulæ of this kind are given in the Appendix (Lotions, F. 11, 12, 13).

Citric acid solution ʒss to ʒj has been successful; acetic acid and sulphur made into a paste is suggested by Neumann.

Pure carbolic acid applied carefully with a match, tincture of iodine, nitrate of zinc paste, nitrate of mercury ointment diluted one to two, nitrate of zinc ointment, veratria ten or twenty grains to the ounce of lard, and a host of others have had advocates, and testify rather to the unsatisfactory results of treatment than to their success; carbolic acid is one of the best.

Salicylic acid is worth trying applied in the form of paste or of Unna's plaster for twenty-four hours, or as a saturated solution in alcohol applied continuously and kept constantly wet for several hours. Desquamation may thus be obtained without going too far, as may happen without great care with strong solutions of corrosive sublimate and the like.

Piffard used peroxide of hydrogen to a melasmic patch, and partially removed it, but whether temporarily or permanently he did not know. Leloir * obtained permanent success with the following treatment. The part was first thoroughly cleansed with soft soap or alcohol, then painted with several layers of a 15 per cent. solution of chrysarobin in chloroform, and this was then covered with a layer of traumaticine, the applications being removed when they began to peel off. He not only claims to have cured many forms of chloasma, but even flat or slightly rugose pigmentary nævi. Hitherto, however, it has not been successful in my hands, and in one case, the patient thought the discoloration was deepened.

Brocq recommends that the emplastrum Vigo or emplastrum rubrum of Vidal should be applied over-night, and perchloride of mercury (a grain to the ounce or more) applied as a lotion twice a day.

Hardaway uses superficial electrolysis for ephelides, the needle not being introduced deeper than the epidermis. It is well adapted and quite manageable for a few lentiginous spots.

* "Traitement des Mélanodermies," *Jour. des Connaissances Médicales*, July 1st, 1886; abs. *Ann. de Derm. et de Syph.*, vol. vii., p. 561.

Hardy says that the sulphur waters of Barèges and Luchon, in the form of douches, are very effectual sometimes for large chloasmic patches. Harrogate and Strathpeffer waters would act in the same way.

Discoloration from matter foreign to the blood may here be described.

Jaundice, produced by the circulation of bile in the blood, produces various tints of yellow up to olive green or even bronze. Dr. Seymour Taylor showed a case at the Ophthalmological Society in April 1886, in which the lower lid on the right side was permanently, while that on the left side had been temporarily, stained of a dark green colour, in a patient who had had jaundice eighteen years previously.

In a case of Cavafy's,* leucoderma, preceded by dark general pigmentation, followed an attack of jaundice in a man æt. twenty-nine.

The connection of jaundice and xanthoma will be reverted to under the latter disease.

With respect to drugs, the most important discoloration is that produced by *Nitrate of Silver*. This discoloration of the skin is known as **argyria**, and was much more frequent before silver nitrate was displaced by bromides in the treatment of epilepsy. Moritz states that the reduced metal is deposited chiefly in the rete, sweat glands, and round the hair-roots, while the sebaceous glands escape; in fact, in almost the same position as ordinary pigmentation. Riemer and Neumann state that it is found in all parts of the skin, except the lining cells of the glands and the cells of the rete, the deposit being greatest immediately beneath that layer. It only occurs after very prolonged administration. Krahmer says the smallest quantity that has induced it is 450 grains, and in Riemer's case 1,740 grains had been taken during twelve months before the first traces of argyria appeared. It has also been excited by the topical application of the silver salt solution to the throat, continued for a long time. I have met with a case in which the blueness did not develop for many years after the topical applications had ceased to be made.

Unfortunately, when once it has shown itself, nothing can stop its further development. It is of various bluish-grey, slate, leaden, bronze, bluish, or blackish shades of colour. It is general in

* *Path. Trans.*, vol. xxxii. (1881), p. 259.

distribution, including the visible mucous membranes, but more marked on the parts most exposed to light, such as the face and hands. For treatment, iodide of potassium has been recommended, but it has little, if any, effect, as a rule; Dühring quotes Yandell to the effect that in two syphilitic patients, by the prolonged administration of large doses of the iodide for several months, combined with mercurial vapour baths, the decolorisation was slowly effected.

Arsenic may also produce a brownish or bronzy pigmentation; it has been described along with the eruptions produced by the drug. The colour gradually fades when it is given up.

The slate-coloured or brownish pigmentation left on the site of psoriasis patches, when arsenic has been given, has already been described under psoriasis.

Picric acid, in large doses, produces a yellowish colour of the conjunctiva, of the skin, and of the urine.

Tattooing.—After the pattern has been pricked out with needles, various colouring matters are rubbed in. Generally gunpowder, vermilion, indigo, or carbon is employed. Hebra* figures a remarkable instance where the whole body was elaborately patterned. W. Anderson showed another such instance of Burmese tattooing at the Dermatological Society in 1892, and there was another case of a woman in Barnum's show. When small and in a disfiguring position, and the removal is desired, excision is the only plan, the particles being too deep for any less radical measures. Grains of gunpowder blown into the skin are also best treated by excisions carefully planned, so as to include as many grains in one cut as possible: if done antiseptically, union by first intention may be obtained. I had a most successful case of this kind; a year after the operation no trace of the incisions could be seen.

These tattoo marks are sometimes the starting-point of cutaneous lesions. Thus Fox† of New York describes and figures a tattoo mark of an anchor on the lines of which twenty warts had developed.

Acanthosis nigricans.‡—This might be defined as a general pigmentation with papillary, mole-like growths.

Two cases are recorded, one by Pollitzer from Unna's clinique,

* *Atlas*, Lieferung viii., Tafel 10 (Wien, 1872).

† *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. ii., p. 216.

‡ *International Atlas*, plates x. and xi.

and one by Janovsky. The first was a woman æt. sixty-two, the other a man æt. forty-two. Both were remarkably alike in symptomatology. In both, the following regions were affected : the face, neck, mouth (including palate, lips, and tongue), the back of the hands, especially the fingers, the axillæ, groins, genito-anal regions, and abdomen. The upper extremities were much affected in Pollitzer's case, while in Janovsky's only the hands were involved. These regions were mostly of a dirty brown colour, but in patches of a bluish-grey. In addition to this, there was more or less papillary growth ; this in its slightest degree, was a simple deepening of the natural lines of the skin. In the most developed places, there were distinct papillary growths, and in parts, there was horny thickening over them. The axillæ and groins were most affected, and after them the neck and hands. The sensory symptoms were almost *nil.* The disease began rather suddenly in the woman, gradually in the man. Treatment had very little effect, soft-soap inunctions and free washing being the most effectual; the disease disappeared spontaneously in the woman, but she died soon after, it was supposed from a concealed cancer. The man was exposed to the fierce heat of a pottery furnace, and had shown some discoloration for some time, but the full development was rather sudden. The only case at all like these two was one reported by myself,* in which a Swedish sailor, æt. twenty-two, who had been a cab-driver, became suddenly pigmented on the face, scalp, neck and trunk, axillæ and flexor aspect of the forearms, the upper two-thirds of the thighs and groins, the penis and scrotum. There was no sharp line of demarcation ; the colour varied from yellowish-brown to almost black at the back of the neck, axillæ, nipples, umbilicus, penis, and scrotum, being deepest at points of friction. In addition, the skin of the neck and axillæ was covered with closely aggregated, small, fleshy, pear-shaped, papillary masses, projecting an eighth of an inch above the surface. Over the whole discoloured area the natural lines were deepened from thickening of the enclosed part. The skin was everywhere smooth, *i.e.*, not scaly. This case differed from the others in the mucous membranes and hands being free, and there was no thickening to speak of in the horny layer. The skin changed

* General bronzing without constitutional symptoms. *Clin. Soc. Trans.*, vol. xiv. (1881), p. 152, with histology.

first at the neck, and the condition arrived at its full development within a few days, and had remained practically unchanged for eight years. It was probably attributable to extreme cold. Treatment produced no effect.

NÆVUS PIGMENTOSUS.

Synonyms.—Pigmentary mole; Nævus spilus; *Fr.* Nævus pigmentaire; *Ger.*, Fleckenmal; Pigmentmal; Nævus verrucosus; Linsenmal.

Definition.—Congenital pigmentary deposits, with or without other changes in the skin.

Symptoms.—Moles may be simply collections of pigment in the skin, without any other change (**nævus spilus**). These are generally quite small, not larger than a large lentil, are most common on the back, but may be seen elsewhere. Hebra considers that they are really not congenital, and therefore ought not to be called nævi, but it is difficult to distinguish those present at birth from those formed subsequently. They are often mistakenly classed with lentigo.

Another form of mole is more or less raised, and the surface is furrowed or otherwise uneven, and may be rough and warty in character (**nævus verrucosus**), or covered with soft papillary growths (**nævus papillomatosus**). Some of the large ones are soft and lax, containing a quantity of fat and loose connective tissue, and resemble dermatolytic growths (**nævus lipomatodes**). A large proportion of moles possess a growth of more or less dense, dark, or less frequently lanugo-like, hair (**nævus pilosus**). The colour of moles varies from a *café au lait* tint to dark brown or black; occasionally, as Hutchinson has pointed out, growths precisely similar to raised moles exist without any pigment, or perhaps are only a very pale fawn colour: he calls them "**white moles.**" A very large, corrugated, cerebelliform, unpigmented growth of this kind on the side of the face, with smaller growths on the neck and chin, was sent to me by my colleague, Mr. Pollard. A very large, unpigmented, cerebriform mole, covering the occipital region, is figured and described by Mansell Moullin.*

Moles vary infinitely in size, number, and distribution. The face,

* *Brit. Med. Jour.*, January 31st, 1891.

neck, and back are the favourite positions. Occasionally they have a traceable nerve distribution. In number, they may amount to hundreds, scattered all over the surface, and while the majority are under half an inch, they may occupy whole regions. A distribution which has been observed in several instances * is the lower part of the trunk extending higher behind than in front, and going down nearly to the lower end of the thigh, compared to the position of "bathing tights." Whether, as in lumbar hypertrichosis, there is any connection with concealed spina bifida, is worthy of investigation. They may grow in proportion to the growth of the bearer, become more prominent and hairy, but they seldom extend at the border; thus in a very extensive mole on the arm of a woman, æt. forty, sent to me by Mr. Cursham Corner, the mother stated that up to the age of five years it was brown and smooth, and that it then began to get papillary, more prominent, and with a black horny covering, but it had never extended at the border. Hutchinson,† however, records a case where a mole on the side of the head did spread at the margin in an adult. The secretion from the papillary mole is often offensive. Late in life moles, especially if irritated in any way, are sometimes the starting-point of melanotic sarcoma and other forms of malignant tumour. The melanotic growths are especially liable to start from moles on the foot. When not too large, and if they are disfiguring from their position, moles may be removed by the knife ‡ or caustics, not taking away the whole depth of the corium if it can be avoided. Small growths can be destroyed by electrolysis, and hairs on moles may be permanently removed by the same method.

* A Peruvian boy was shown at the Westminster Aquarium with a dark hairy mole with this distribution, and Nevins-Hyde records and figures two similar instances with dermatolytic growths in *Jour. of Cut. and Ven. Dis.*, vol. iii., p. 93, also a case of multiple lateral nævi in bands in *Chicago Med. Jour. and Examiner*, October 1877. The sister of the above Peruvian boy had a still larger growth, extending from the nucha all over the back. Both she and her brother had hundreds of smaller hairy growths of all sizes scattered irregularly over the trunk, face, and limbs. A still more extraordinary case, with extensive dermatolytic growths all over the back, and nævi of all sizes elsewhere, is described and figured in Lavater's *Physiognomy*, 1848 ed., plates lxi. and lxii. See also Paget's case, *Lancet*, August 1867; Ziemssen's *Handbook of Skin Diseases*, p. 405.

† Hutchinson's *Archives of Surgery*, vol. ii., No. 8, p. 366.

‡ See a case of removal of mole occupying half of the forehead by Morrant Baker in *Med. Chir. Trans.*, vol. lxi.

CLASS V.

ATROPHIÆ—ATROPHIES.

ALBINISM.

Deriv.—Albus, white.

Synonyms.—Albinismus ; Congenital leucoderma ; Congenital leucasmus ; Congenital leucopathia ; Congenital achroma.

Symptoms.—Albinism is the congenital absence of pigment in the tissues, and may be either universal or partial. Albinoes, as people with universal albinism are called, are characterised by a total absence of colouring matter in the skin, hair, iris, and choroid. Their skin is either perfectly white, or pinkish in the thinner parts where the blood vessels are partially visible. The hair is fine and soft, with a silky lustre, is either perfectly white or of a whitish yellow tint, as a rule, but in a case recorded by Folker * it was red. The pupil appears red, and the iris pink, owing to the absence of pigment in it and the choroid, allowing the colour of the vessels to show through ; and as the retina has no protection against excess of light, photophobia is always present, and the irides, eyeballs, and lids are in a constant state of movement. Sometimes, when viewed obliquely, the iris has a pale blue tint, the result of interference of light.

As a rule, albinoes are weakly both in body and mind, of short stature, with a proneness to chest disease, but there are many exceptions, a notable one being a late well-known English statesman.

Animals and birds are also subject to albinism, *e.g.*, ferrets, blackbirds, etc.

Partial albinism is much more frequent, and of course more noticeable in coloured races, but is also to be seen in white people. The absence of pigment occurs in irregularly outlined, isolated

* *Lancet*, May 31st, 1879.

patches of various sizes, the borders of which may be well or ill-defined, according to whether the adjoining skin is normally or slightly under-pigmented, but it is never more strongly pigmented. They are the antitheses of the flat pigmented moles, and, like them, may have a nerve distribution,* but are rarely, if ever, symmetrical. Any hairs on the affected areas are also white.

Etiology.—Heredity is the only known cause of the complete form, and this in the shape of family prevalence, as where there are several children in a family more than one are almost sure to be albinoes, and Lesser knew of a family where six out of seven were so. In some tropical countries, such as Loango, Lower Guinea, it is said to be endemic. On the other hand, it is exceptional for the parents to be affected; but in a case mentioned by Schlegel,† the grandfather was an albino, and Marey‡ describes the Cape May albinoes, in which the mother and father "were fair emblems of the African race," and of their children three were black and three white, born in the following order: two consecutive black boys, two consecutive white girls, one black girl, one white boy.

Sym § of Edinburgh related the history of a family of seven children who were alternately albino and dark. All but the seventh were living and in good health, and without mental defect. The parents and other relatives were dark.

LEUCODERMA.

Deriv.—λευκός, white; and δέρμα, the skin.

Synonyms.—Vitiligo; Acquired leucasmus; Leucopathia or Achroma; Piebald-skin.

Definition.—An acquired disease characterised by the presence of symmetrical and progressive white patches with convex borders surrounded by increased pigmentation.

* In Ziemssen's *Handbook of Skin Diseases*, p. 447, such a case is figured.

† *Ein Betrag zur näheren kenntniss der Albinos* (Meiningen: 1824), quoted in Ziemssen.

‡ *Amer. Jour. of Med. Sci.*, 1839, quoted in Dühring.

§ At the Ophthalmological Society of London, reported in the *Lancet*, July 11th, 1891.

This is a common disease in tropical countries, but rare in Europe. Thus Garden met with one in thirty-six cases in India, Kaposi placed it at one in five hundred in Vienna, Erasmus Wilson one in four hundred in London, MacCall Anderson one in two thousand five hundred, and my own figures give 1·5 per thousand.

Symptoms.—The affection is entirely one of pigment distribution. In many, and I believe in all, though it is denied by some authors, there is an increased deposition of pigment preceding the white patches. These appear as round or oval, occasionally irregular spots in the darker area, which slowly enlarge, driving the pigment before them, as it were; the part immediately beyond the white area, containing more or less excess of pigment, which is generally of a light brown hue, and offers a sharp contrast to the milk-white area within. The white patches, either from unequal spreading or from coalescence, lose their roundish shape, but the borders are always convex and, as a rule, well defined, but occasionally shade off gradually. The darker colour diminishes from the white area outwards, and always merges imperceptibly into the normal skin.

The patches may be few or numerous, affect any or all regions of the body successively, including the scalp; the hair also nearly always turns white in the affected areas, which contrast with the pigmented parts and give the surface a map-like appearance. The disease takes many years to travel all over the body, and when it has spread over a whole region may seem to have undergone a spontaneous cure, owing to the absence of contrast, but the normal pigment is very rarely, if ever, restored. The progress is not always regular, and may be arrested for a time.

It is more conspicuous in summer, probably owing to the pigmented part being deeper-coloured then, and sometimes this excess permanently disappears, and effects an improvement in appearance by diminishing the contrast between the light and dark part. This progressive form is always fairly symmetrical, often strikingly so. There is no alteration in sensation or secretion, nor is there any subjective symptom, though pruritus has occasionally preceded the appearance of the spots.

Etiology.—Both sexes are equally liable, but it is rare before ten or after thirty. The youngest case that I have met with was a girl four years old. The oldest date of onset was in a gentleman æt. thirty-nine, who had lived in Mauritius all his life, and had

had ague several times: his wife also had two small white spots on the same side of the neck, which appeared after coming to England. Another case began at forty-two years. It may also be hereditary; a former student of University College Hospital informed me that it existed in his sister, mother, and grandmother. The disease is certainly more common in the dark races; exposure to the sun is thought to be an exciting influence, and in one of my cases it supervened after sunstroke; extreme cold seems also capable of producing it, and in a case under J. Startin, jun., it came on in Canada after suffering severely from the cold. In my experience, it is more common in neurotic subjects, and Lebrun thinks it is always a ground for inquiring closely for other neuroses. I have seen associated with it migraine and retinitis pigmentosa, the patient stating that the leucoderma had commenced with defective sight nine years previously. As an associated condition it has been seen in connection with morphœa, alopecia areata,* Addison's disease, and Graves' disease, all of them considered to be diseases with a neurotic element in them. Depressing influences, especially severe illness, such as ague, intermittent fever, scarlatina, and typhoid, have preceded the disease in many instances. Cavafy's case following jaundice has already been mentioned.

Pathology.—There are strong grounds for regarding the disease as due to a trophoneurosis, but how this produces it, and why, is not clear. The anatomy of the process has been explained under the pathology of pigmentation in general.

Diagnosis.—This will seldom give much difficulty. Its symmetry, progressiveness, and the combination of excess and deficiency, are characteristic features; in all these points, it differs from the congenital white patches which are sometimes to be observed, and called partial albinism.

In India, the disease is sometimes mistaken for *non-tubercular* or *nerve-leprosy*, and indeed it is sometimes called "white leprosy"; it has, however, nothing in common with true lepra, and the pale patches on the skin of the late stage of nerve-leprosy may always be distinguished by the more or less pronounced anæsthesia in the affected areas, while the sensibility is never affected in leucoderma. When the white areas have spread over a large part of the body, driving the pigment, so to speak, into small islands, the

* According to Thibierge, the alopecia associated with leucoderma is not the same as alopecia areata, and is persistent.

pigmentation becomes the most striking feature, and the affection may be mistaken for *chloasma*; the concave border of the pigmented area should suggest leucoderma, and more attentive observation will then reveal the abnormal whiteness of the surrounding skin, and the history will clear up any remaining doubt.

The whiteness often seen in *morphœa* may be distinguished by its being accompanied by a change in the texture of the skin, which is often parchment-like, and by the other signs of that disease.

Prognosis.—It will be gathered from the above description that the disease is not a very hopeful one, though spontaneous arrest may occur. In course of time, improvement may take place, either through the excess of pigmentation fading, or by a whole area becoming white, and so the contrast is lost; this is the probable explanation of reported cures.* A case is reported by Stellwagon of Philadelphia, in which the whole body surface thus became white, and exposure to the sun had no effect on it.

Treatment.—This is highly unsatisfactory; nothing appears to have any controlling influence. Dühring recommends arsenic, but apparently on theoretical grounds; perhaps, if given long enough or in large enough doses, arsenical pigmentation might ensue, which would, at all events, be a better match than that proposed by Brito, who suggested that argyria should be produced.

General tonics are also recommended, and an effort should be made to put the general health of the patient in as vigorous a condition as possible; in this way we may hope to arrest the disease, though we can hardly hope to restore the lost pigment. Noücke, however, in his own case, which began when he was five years old, found that at one point the pigment was spontaneously restored, while the rest remained unaffected.

Ehrmann relates a case where small pigment spots appeared after a time in the leucodermic patches; these Kaposi suggests might have been unperceived lentigines, which the contrasting whiteness of the disease revealed, but this explanation will not hold if leucoderma is produced by the cessation of the pigment supply.

Local treatment is directed towards diminishing the contrast between the light and dark parts. The excess may be attacked in the same way as is recommended in chloasma, while the white part may, where it is worth while, be slightly stained with walnut juice or other pigment.

* *E.g.*, Balmanno Squire's case, *Brit. Med. Jour.*, April 1881.

ATROPHIA CUTIS OR ATROPHODERMA.

True atrophy of the skin may be quantitative or qualitative, *i.e.*, there may be simply diminution in the number or size of its component elements, or an alteration of a degenerative character of those elements.

Degenerative Atrophy.—Information is still wanted with regard to the anatomical distinctions of different qualitative atrophies, but there is not necessarily diminution of bulk, and there may be actual increase, as in the later stage of morphœa, where there is thickening from increased connective tissue; but at the same time the skin is hardened, yellowish, or whitish and waxy-looking, loses its natural lines, and is sometimes puckered at the borders; in their earliest stage, the small white spots are examples of the quantitative form.

Quantitative Atrophies.—In this condition, speaking generally, the skin is thin, usually very white, but sometimes pigmented, finely wrinkled, and dry; or, when there is contraction of the part below, as in the last stage of scleroderma, stretched, smooth, and shining.

This atrophy may be idiopathic or symptomatic, and each of these may be diffused or circumscribed, and these again may be further subdivided. As the terms speak for themselves, all these atrophies may be placed in a tabular form, which will show their relations to each other without further explanation.

ATROPHODERMA PROPRIUM.

- Atrophoderma Idiopathicum
  - Diffusum
    - Juvenilis (Xeroderma)
      - Pigmentosum.
      - Albidum.
    - Senilis
      - Quantitativum.
      - Qualitativum.
  - Circumscriptum (Striæ et Maculæ)
    - Traumaticum.
    - Non-traumaticum.
- Atrophoderma Symptomaticum
  - Neuriticum (Glossy skin)
    - Traumaticum.
    - Non-traumaticum.
  - Morborum cutis
    - Scleroderma.
    - Seborrhœa.
    - Lupus.
    - Syphilis.
    - Favus, etc.

The symptomatic atrophies due to other skin diseases are

described under their primary disease; the others only, will be given here.

Two diseases of trophic origin, though not atrophies, are included in this section, viz., perforating ulcer and ainhum.

XERODERMA PIGMENTOSUM.*

Synonyms.—Atrophoderma pigmentosum (Crocker); Angioma pigmentosum et atrophicum (Taylor); Dermatosis Kaposi (Vidal); Liodermia essentialis cum melanosi et telangiectasia (Neisser); Melanosis lenticularis progressiva (Pick).

This disease is a very rare one, but owing to its striking peculiarities it is easily recognised, and there are about sixty cases on record, though the disease has only been known since Kaposi † first described it in 1870. The first three cases known in England came under my care in 1883,‡ and as the eldest presented all the features in a marked degree, I will relate the case as a type. She was the eldest of a family of four, the second child, a girl, and the third, a boy, being also affected; but the youngest, a girl, was quite healthy, and was the only one the mother had not suckled.

The patient was a girl æt. twelve years, whose general health and nutrition were good. The disease began when she was between twelve and eighteen months old, without any premonitory symptoms, as "freckles," which appeared simultaneously over the regions now affected, and although the lesions have increased in number and variety, the limits of the disease have not altered. The disease occupies the parts habitually uncovered in childhood, viz.:—The ears, the face, the hairy scalp in the temporal regions only, the whole of the neck to just below the clavicles, the back of the fingers, hands, and forearms, the whole part of the upper

* In the first edition of this work, I suggested atrophoderma instead of xeroderma, as more appropriate and less liable to lead to confusion with mild ichthyosis; but although every one disliked Kaposi's designation, it is in a fair way to be generally adopted, and dermatology suffers too much from overchristening for me to hold out.

† Hebra, vol. iii., p. 252.

‡ Recorded in *Med. Chir. Trans.* for 1884, with coloured plates and table of thirty-four cases. Since then three cases have been published by Brown Hunter in Ireland, one by MacCall Anderson in Scotland, and one each by Pringle and Stephen Mackenzie. Archambault, in his *Thèse de Bordeaux*, 1890, has collected sixty cases, and gives a good *résumé* to date.

arms, as far up as the insertion of the deltoid, the flexor surface of the forearms to the wrists, but less on the ulnar side. The legs both front and back below the knee, the nails, palms, inner part of upper arms, and all the rest of the body, were quite free. The whole areas above mentioned, were more or less densely speckled with pigmented freckle-like spots, varying in tint from a light raw umber to a deep sepia, and in size from a pin's head to a bean, and of roundish or irregular shape. They were not grouped or arranged in any particular way, but were most abundant upon the lower part of the face, the neck, and backs of the forearms. Interspersed amongst the pigment spots, but not so numerous, were small white atrophic spots, which in the orbital region and other parts of the face had coalesced, forming white shining cicatrix-like areas, the skin upon which was finely wrinkled, and either smooth and shiny, or covered with thin, white scales; there was slight contraction, and a fold could be picked up less easily than usual, and felt thin. On these white areas, bright red spots, flat or convex, slightly raised or level with the skin, were conspicuous, but not numerous; close inspection showed that they were due to telangiectasis, and there were also some stellate vascular spots and striæ interspersed among the pigment. Small warts, often better felt than seen, were springing up here and there from some of the pigment spots, and from some of these apparently insignificant lesions, tumours ultimately arose. One of these sprang from the right tragus, and began as a warty growth on a pigment spot, and formed a pedunculated fungating mass as large as a good-sized orange; it grew to the size of the end of a finger, and then began to ulcerate and fungate; two smaller tumours, covered with blood-crusts, were situated upon the right cheek. Finally, there were numerous superficial ulcerations, covered with yellow crusts, irregularly scattered over the face, mostly on the right side. On removing the crusts, some of the ulcers were slightly depressed, others slightly raised above the surface. These came long before the tumours, and the pus was apparently inoculable; some fresh sores certainly originated from the purulent discharge from the eyes. The cicatricial contraction puckered the mouth, dilated the nostrils, and everted the lower eyelids. These last were red at the margin, the cilia were lost, and the mucous membrane was granular; conjunctivitis occurred at times, and there was vascular pterygium on the right internal

canthus. The red of the lips, and for half an inch inside, was white mottled with red, the rest of the oral mucous membrane being free. The crusts and cicatricial contraction gave the appearance of a late stage of lupus to the middle part of the face. The scalp was thickly covered with pityriasis, the scales being often brownish. She complained of neither itching nor pain.

Course. — Beginning in the second year of life, the freckles may appear suddenly without apparent cause, or be preceded by erythematous patches or papules, the papules being like those of measles; after a few days, the red spots fade, and leave the pigment spots. The whole areas mentioned may be affected at once or gradually, but the disease never spreads far beyond these limits, and after a time is quite stationary as regards extent. The next step is not clearly established. Taylor and Duhring think that the telangiectases next appear, and the vessels get obliterated and leave the white atrophic spots; I believe that the pigment disappears in some spots and leaves white atrophy, and that the telangiectases are produced in consequence of obliteration of neighbouring vessels. The superficial ulcerations do not begin for some years, are started probably by the eye discharge, and extended by auto-inoculation. The warts are later still, only when the disease has existed for some years. They arise in the pigment spots, and, as above stated, are the starting-point of the tumours, which, however, may not make their appearance for many years, in one case thirty. These tumours mark the beginning of the end; the discharge and pain from them—and they may be very numerous—undermine the previous good health of the patient, who dies marasmic or exhausted; only in rare instances do the tumours become generalised in internal organs.

Variations.—All the cases resemble each other remarkably, but there are some variations. Thus, the disease has begun as early as six months, while in Riehl's case, a woman æt. sixty-one, it apparently began to develop eighteen years previously, though she admitted having been freckled on the face and arms from childhood. Kaposi had a case that commenced at eighteen years, and various other ages are on record, but most begin in the second year of life. In a few cases, there may be only extensive freckling,* and in others,

* In a recent case of Kaposi's, a man æt. twenty-five, there was freckling, large and small, all over the trunk and buttocks, as well as on the face, upon which there were many carcinomata.

again, there may be merely a little freckling with the tumours * (E. Stern). The areas mentioned may be exceeded: as far as the third rib is common, but in Duhring's case the whole scalp was affected, and on the trunk, the disease extended to the mammæ in front and to the lumbar region behind, and in a minor degree it has been seen on the back of the foot. In most of the cases, the scalp is said to be free, and even the pityriasis is not always described. Pigment spots are occasionally seen on the palms and under the nails, and the tip of the tongue was once affected like the lips. The atrophy may be either more or less marked than in the type case, and there is often more contraction, and therefore more tightness of the skin. The telangiectases may be very numerous and conspicuous. Instead of fungating, the tumours may be verrucose; in my third case, a tumour grew in a finger-like way from the left cheek for an inch and a half without ulceration, became strangulated at the base, and dropped off, leaving a cicatrix. Vidal had a similar case. The greater frequency with which the tumours and ulcers develop upon the right side of the face is remarkable.

Etiology.—Congenital predisposition is the only known cause, though probably some other factor, as an exciting element, is required.

Sex.—The number of males and females is about equal. In the fifty-two cases collected by Elsenberg, twenty-seven were females and twenty-five males. It is not hereditary, but shows a family prevalence,† and has then a tendency to select one sex. Twenty-six cases occurred in nine families, and in seven it affected one sex only. In Ruder's series, in a family of eight boys and five girls, seven boys were affected and the rest of the family were free. Kaposi, Taylor, and myself have had exceptions to this.

Age.—Nearly all the cases begin in the first or second year, the youngest being five months, the oldest eighteen and forty-three years ‡ (Riehl). It thus resembles ichthyosis and prurigo in not appearing until some time after birth.

Hygiene has not been in fault, as many of the cases were in good circumstances, but

Season appears to have some influence, several having begun in

* *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 713, with coloured plate.

† Two of Taylor's cases were cousins of three other cases.

‡ Kaposi has had a case æt. sixty-four, but the time of onset was not stated in the report.

spring or summer; and exposure to the sun has been suggested, and in Eulenberg's case, proved to be an exciting cause.

Pathology.—The most feasible explanation is, that the disease is an atrophic degeneration of the skin, dependent upon a primary neurosis, to which there is a congenital predisposition. Kaposi's views are probably correct, that the alteration begins in the papillary body and epidermis, and spreads from these to the dermis, the pigmentation being due to the atrophy, as is often seen in other atrophies. Perhaps the vessels are the first affected, and besides the above changes, determine the formation of telangiectases by collateral dilatation.

The tumours are usually described as epitheliomatous, but in the type case were distinctly papillomatous and not malignant. Taylor speaks of "angio-myxomas," and Vidal of "épithéliome verruqueux." Others describe them as "sarco-carcinomas."

Anatomy.—I have examined a piece of skin from the upper arm containing the commencement of a small wart from the eldest girl described above, and a piece from the forearm of the boy containing a small telangiectasis; also the large tumour and a smaller one, and an ulcer which was beginning to fungate, all from the girl.

The results, briefly stated, were:—The large tumour was substantially a papilloma, consisting of a large quantity of granulation tissue, with many spindle cells, tunnelled with numerous large vessels. Imbedded at intervals amongst this tissue, were aggregations of elongated cylinders, some branched; each was bounded by imperfect palisade epithelium, enclosing small epithelial cells, closely but irregularly arranged (fig. 25).

The smaller tumour had similar granulation tissue, but the papillomatous part consisted of digital processes radiating from a common, very short pedicle, and forming a section of a circle bounded by a thin layer of fibrous tissue. The ulcer showed great downgrowth of the interpapillary processes, with enormous proliferation of the rete itself. Comparison of this with the tumours, made it probable that this proliferation when continued, led in the course of the formation of the tumours, to first, separation of these processes from the rest of the rete, perhaps from ulceration at the surface, and then, by independent growth and further separation of the several parts, to the numerous elongated cylinders already described.

It is probable that the angio-myxomas of Taylor of New York were of this character, and also the "épithéliome verruqueux" of Vidal; but Kaposi, in his classical monograph, while figuring a very similar structure, shows also typical epitheliomatous nests, and other good observers have also testified to their being true epitheliomata.

There was no evidence whatever of such structure in my case, and the glands at the base of the pedicle of the larger tumour were healthy, but slightly enlarged. It is, however, highly probable that the epitheliomatous

structure would have developed eventually, if the tumours* had not been removed.

In the skin, the papillary layer was atrophied and deprived to a great extent of vessels; the rete over it was thinned, and formed a slightly wavy line. Pigment was embedded in the cells, and occasionally there was a granule in the corium. The wart showed the usual structure, and there was a scanty infiltration of round cells below it, but the rest of the corium was normal.

These observations agree with those of Neisser, Vidal, and Leloir. In addition, in the white atrophied part, Neisser found atrophy of the epidermis, absence of pigment, and a regular line of demarcation between

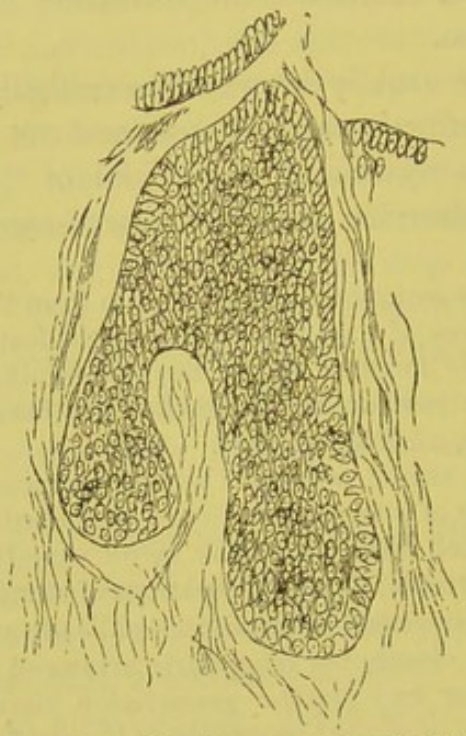

Fig. 25.—A single lobe of the large papillomatous tumour. × 350.

the epidermis and the papillary body. Vidal and Leloir found no diseased nerve fibres, but in the middle of the epidermis were nodules of epithelioma, which had, they thought, developed from the cutaneous glands.

Diagnosis.—The commencement of the disease in early childhood in the form of freckle-like pigment spots, preceded or not by erythema, the subsequent development of white atrophy with telangiectases, superficial ulcers, pigmented warts, and verrucose or fungating tumours, and the predominance of the lesions in

* Pollitzer examined a tumour removed from my third case in 1890, and described a growth of mixed morbid elements, epithelioma predominating, but also, he says, sarcoma, myxoma, granuloma, cylindroma, etc. *Amer. Jour. Cut. and Ven. Dis.*, vol. x. (1892), p. 133. In the same volume are a description and coloured plate of the thirteenth American case.

exposed parts, form a history and picture which, viewed as a whole, scarcely admit of error, but mistakes have arisen from paying too exclusive regard to one or other feature.

The *atrophic* stage of some cases of *general scleroderma* most nearly resembles it, for there may be thinned, white skin, with pigment in parts, telangiectases, and tension, so that a fold cannot be pinched up without difficulty, but the history is very different. Scleroderma does not begin so early as most cases of this disease, and commences with increase of volume and board-like hardness and immobility; the pigment, telangiectases, and atrophy are of later development. The pigment is not in freckle-like spots, nor are the telangiectases so large and conspicuous, being only stellate and striate. The position also is paraplegic, and not limited to any special regions. In the early stage, the red spots have been mistaken for *measles*, the pigment spots for ordinary *freckles*, the telangiectases for *nævi*, while in the later stage, the cicatricial aspect and crusts have led to its being treated for *lupus*. All these errors can be avoided by taking all the points into consideration. See also hydroa vacciniforme, which has been mistaken for xeroderma pigmentosum.

Prognosis.—The prognosis is altogether bad, for although one case which began late did not develop tumours for thirty years, in the majority they appear in childhood, and then the patient has but a few years to live.

Treatment.—The internal or external means that have yet been tried have not been of any avail to cure the disease. Arsenic, cod-liver oil, iodide of potassium, and various tonics have been given, without any beneficial results.

Much, however, can be done for the alleviation of the troubles consequent upon the ulcers and tumours, and the inflammatory condition of the eyes. Diligently bathing the eyes with boric acid lotion subdued the conjunctivitis, and relieved the eyes in my cases, and by stopping the discharge, prevented the formation of fresh sores. The recent ones were healed with a diluted ammoniated mercury ointment. The older ulcers were scraped with a sharp spoon, dressed with a boric acid ointment, and healed satisfactorily. The tumours were cut out, and the site healed readily. The improvement in appearance and the comfort afforded to the patients were very striking, and though, no doubt, fresh ulcers would form and tumours develop, if they were dealt

with at once, it seems probable that the life of the patient would be prolonged, and perhaps the development of epitheliomata might in some cases be prevented.

ATROPHODERMA ALBIDUM.

Here the condition is stationary.

As I only know this affection through the description of Kaposi, who states that he has seen it repeatedly, and designates it as another type of xeroderma, I give it in almost his own words.

Symptoms.—The skin from the middle of the thigh to the sole, more rarely from the upper arm to the palm, is strikingly white in places, stretched, and difficult to pick up, with the epidermis extremely thinned, faintly glistening, wrinkled like goldbeater skin, and peeling off in thin, shining flakes. The sensibility is very great on the finger tips, palm, and sole, on account of the stretching and insufficient epidermis covering, so that the use of the hands and feet is interfered with.

Diagnosis.—The condition remains stationary from the earliest childhood, and from this and the above symptoms, need not be confused with atrophic scleroderma.

Treatment.—Emollient ointments and plasters are useful to mitigate the dryness and tension of the epidermis, and the soles need protection against pressure in walking.

ATROPHIA CUTIS SENILIS.

Synonym.—Atrophoderma senile.

The condition is usually associated with general signs of senile degeneration. It may affect the whole skin, its appendages, and subcutaneous tissues, may be simple or quantitative, degenerative or qualitative, or more often both.

The skin is more or less in folds from loss of fat, less elastic, slightly shrunken, wrinkled, and from atrophy of the glands is dry, sometimes with fine branny desquamation; it feels thin, and is transparent and shining. The hair is lanugo-like or absent. Pruritus, which may be severe and persistent, is sometimes present. It may be paler, but is more often darker than normal, sometimes

even a tawny brown, or it may take the form of freckles,* often very large and dark. Various new growths are liable to arise. The arms, trunk, and neck may be studded with numerous flat warts, deeply pigmented, of a dirty brown or black colour, and if the horny covering be picked off, hypertrophied papillæ are exposed, or the dilated orifice of a sebaceous gland which was plugged with accumulated epidermis. Small pendulous sacs of skin, the contained fibromata having atrophied, are frequent on the neck and trunk; and scattered about are bright crimson, very slightly raised spots, consisting of tufts of dilated vessels. Soft mole-like growths may also be present, and someone or other of these ill-nourished structures often take on a malignant growth.

Epithelioma and rodent ulcer are especially the new growths of old age, but wens, senile lupus, senile scrofula, and the small fibromata alluded to, are also not infrequent. A rarer condition is the presence of flat yellow discs about an eighth of inch in diameter, apparently sebaceous, and situated at the follicular orifices; they occur chiefly on the forehead and other parts of the face (see milium), of which I have seen a few extreme instances.

Anatomy.—Neumann found the epidermis thinned and forming a wavy line over the shrunken papillary layer. The corium generally was thinned and its connective-tissue corpuscles fewer and smaller, with pigment granules among the fibre bundles; the vessels were in some cases destroyed, in others enlarged, and contained pigment masses. The papilla of the hair was often shrunken, and the cells of the outer root-sheath hornified and sometimes bulging out the follicle; many of the sebaceous glands were enlarged, at least in some of their acini, which were filled with crumbling epidermic masses; the fat cells were here absent, leaving the connective-tissue meshes empty.

Degenerative Atrophy. In this, the connective-tissue fibres lose their definition from being clouded with granules, and changed into more or less homogeneous tough or brittle masses; these changes are known as granular or vitreous degeneration, and some speak of lardaceous and fatty changes.

Colloid degeneration of the corium is described along with new growths.

* See under eczema a case of freckles following it, also Hutchinson on 'Tissue dotage," *Archives*, vol. iii., p. 315.

STRIÆ ET MACULÆ ATROPHICÆ.

Synonym.—Atrophoderma striatum et maculatum.

Symptoms.—This condition may be idiopathic or symptomatic. The idiopathic form occurs as streaks and spots; the "streaks" are pearly or bluish white, glistening scar-like lines from one to several inches long, and a quarter of an inch or more wide. They lie in two or more parallel lines, inclined at various angles to the longitudinal axis of the body, following the natural lines of splitting of the skin, and are situated chiefly about the buttocks, the anterior border of the ilium, the trochanters and thighs, rarely on the neck, trunk, or arms. They are slightly depressed below the surface, and the skin is evidently thinned there.

Wilson has described cases of linear atrophy which he considered due to defective nerve supply, but one of the cases followed a blow, and another was the consequence of violent sneezing, so that the possibility of a traumatic origin cannot be quite excluded. The lesions were situated in the course of the supra-orbital nerve, beginning by a faint white line with slightly red borders, the white part widened and deepened; sensibility was lost, and the skin became dry. Subsequently the sides of the sulcus were drawn together, leaving "a deep linear groove, like a sword-cut."

The "spots" are less common; they are from a lentil to half-a-crown in size, also white and slightly depressed, usually isolated, and are seen mostly on the trunk and neck. Both lesions make their appearance unnoticed by the patient, as a rule, and give rise to no inconvenience, but they never go away entirely, though they may get less obvious from the natural elasticity of the skin drawing the sides together. There is much reason to believe that this is a secondary condition. Liveing observed a case of the macular variety, where the spots were in all stages, and found that the first was characterised by slight redness and by well-marked hypertrophy rather than atrophy, for the spots were raised above the skin, and were hard and fibrous. This was soon followed by the second characteristic white stage, and in some of them by a third, consisting of a shrinking process, which drew the healthy surrounding tissues together, and the spots became barely perceptible. Taylor of New York and Tilbury Fox also mention

hyperæmia as an antecedent condition. Jadassohn * described a case where the spots varied from a lentil to a shilling all over the extensor aspect of the limbs in a young woman; they were shown to have followed light red, slightly raised papules.

The vitiligo of Bateman, which differs from that of Willan, appears to belong here, but the tubercles are white from the beginning; he describes it thus:—"It is characterised by the appearance of smooth, white, shining tubercles, which rise on the skin, sometimes in particular parts, as about the ears, neck, and face, and sometimes over nearly the whole body, intermixing with shining papulæ. They vary much in their course and progress; in some cases, they reach their full size in the course of a week (attaining to the magnitude of a large wart), and then begin to subside, becoming level with the cuticle in about ten days. In other instances, they advance less rapidly, and the elevation which they acquire is less considerable—in fact, they are less distinctly tubercular. But in these cases, they are more prominent, and, as they gradually subside to the level of the surface, they creep along in one direction, as, for example, across the face or along the limbs, chequering the whole superficies with 'a veal-skin' appearance. All the hairs drop out where the disease passes, and never sprout again, a smooth, shining surface, as if polished, being left, and the morbid whiteness remaining through life. The eruption never goes on to ulceration."

Tilbury Fox † records a case which he considers referable to Bateman's vitiligo, but the tubercles were slower in their evolution.

Etiology.—Both striæ and maculæ are seen in adults of both sexes, and at all ages, but Schultze found that 36 per cent. were women who had never borne children, and only 6 per cent. were men, and they were more frequent in tall men. This applies only to the striæ, which he considered due to the stretching of the skin during the expansion of the pelvis and growth of the limbs. The cases of striæ which are sometimes observed in convalescence from typhoid fever in the limbs of children and young adults are also probably due to the rapid growth often observed under such circumstances. The damage to the nutrition

* "Ueber eine eigenartige Form von 'Atrophia Maculosa Cutis,'" *Verhandl. der deutsch. derm. Gesellsch. Congress* 1891. He discusses many other reported cases.

† *Lancet*, June 28th, 1879.

of the skin by the fever is doubtless a predisposing factor. In Catani's case of a youth of twenty years old, they seem to have been produced by the rapid development of fat. In Ohmann-Dumesnil's * case, a girl, when two and a half years old, had a deep burn on the radial side of the wrist close to the root of the thumb; when seven years old, the whole limb was, to some extent, wasted, and on the arm and forearm were five atrophic, scar-like, linear striæ three-eighths of an inch wide, and lying over the brachial and radial nerves. There was also slight hyperæsthesia. These lesions were clearly neurotic. No satisfactory explanation of the maculæ has been afforded. Wilson's cases and the antecedent hyperæmia of some others, favour to some extent a tropho-neurotic origin, in some instances at all events, a view Schwimmer strongly advocates.

Anatomy.—Langer and Kaposi have found atrophy of the epidermis, obliteration of the papillæ, separation of the connective-tissue fibres, and diminution of the glands, vessels, hair-follicles, and fat lobules, partly from atrophy, partly from separation.

In plate xv. of the *International Atlas*, Schweninger and Buzzi describe a case of a rare affection, which they designate **Multiple, Benign, Tumour-like, New Growths.** It has also been observed by M. Morris, Colcott Fox, and Van Hoorn.

Clinically, the lesions are soft, round, or oval projections, from a lentil to a bean in size, more or less white, with a slight bluish or slate colour in some of them. Most of them are bladder-like, and can be pressed into the skin by the finger, projecting again immediately like a hernia. The larger ones are flattened and slightly puckered, and harder than the smaller, from which they develop. They undergo spontaneous involution, and leave only flaccid, loose, foveated scars. They appear very gradually and without sensory symptoms on the trunk, shoulders, and thighs, and ultimately become numerous, as none disappear entirely, and others keep forming. Three out of the four cases were women. One had had syphilis, and she stated that the lesions appeared on a secondary eruption, which did not ulcerate; but in the other cases, there was no evidence of syphilis.

Microscopically, Buzzi found that they were not true tumours, but the projections were produced by the skin alone, in which the elastic

* *Brit. Jour. Derm.*, vol. ii. (1890), p. 246.

fibres were quite absent, with slight increase of them at the border of the pseudo-tumour. Around the vessels of the superficial horizontal network and the skin appendages, there were round-cell accumulations and evidence of proliferation of the compound elements. The passive retraction of the elastic tissue was the primary change, as it was constant in the smallest lesions, which appear therefore to belong more to atrophy than to new growth, resembling somewhat maculæ atrophicæ, but forming projections instead of depressions.

I have seen very similar lesions associated with fibromata of the ordinary form, when some of them have been absorbed. It is probable that they are the last phase of more than one pathological process.

From the nature of the lesions, treatment has not been, nor is likely to be, of any avail.

Anomalous cases of more general atrophy have occasionally been reported, such as Wilson's * cases of "General Idiopathic Cutaneous Atrophy," Schwimmer's † "Atrophia Cutis Universalis," which are probably atrophic general scleroderma, and Atkinson's ‡ "Unilateral Idiopathic Cutaneous Atrophy," which was probably morphœa. Glax,§ Geber,‖ and others have reported similar cases. But the following case of **diffuse idiopathic atrophy of the skin** by Buchwald ¶ of Breslau, appears to be more to the point.

The patient was a strong, healthy man, in whom the disease began ten years previously, when he was twenty years old, without apparent cause; it began in the knees and spread mainly upwards, soon reaching its present limits, but the change in the skin was not completed for a year, since which there had been no further alteration, except occasional ulcers on the leg and foot in winter. The whole of both thighs, except in the parts adjacent to the scrotum, were affected; the skin was quite soft and in folds, and when pinched up the folds remained erect; the surface was dry, brownish, and desquamating, with dilated veins, which, when he stood, made the limbs cyanotic. Microscopically, there was total

* Wilson, p. 394.
† Schwimmer, case 20, p. 189.
‡ *Richmond and Louisville Medical Journal*, December 1887.
§ *Viertelj. f. Derm. u. Syph.*, Heft i., 1874.
‖ *Allg. wiener med. Ztg.*, No. 35, 1874.
¶ *Viertelj. f. Derm. u. Syph.*, Heft iv., 1883, with plate.

atrophy of the papillæ and fat, partial atrophy of the sweat glands and hair-sacs, and the connective tissue was swollen and densely infiltrated with cell nuclei.

Since Buchwald's case was published, Behrend * has reported a case of congenital idiopathic atrophy in an infant æt. seventeen months, in which the skin of the whole body, except the buttocks, was affected, along with onychogryphosis of the fingers. Touton † has met with a third case, a man æt. fifty-seven, in which the atrophy was acquired, the lesion occupying the upper and lower extremities, beginning when he was thirty-five years old, and slowly extending upwards towards the trunk. Another case is reported by Pospelow ; ‡ the left upper extremity of a man æt. fifty was affected. Groen § met with a case of a sailor æt. forty-seven, in which there was atrophy of the skin from just below Poupart's ligament to the toes and soles. The skin was thin, transparent, reddish, or cyanotic. No cause was discovered. Breisky ‖ also describes an atrophy of the skin of the external genitals in women under the name of **krauriosis** or shrivelling.

Symptomatic Atrophy may be simple or degenerative, traumatic or pathological. In the simple form, of which pregnancy scars (lineæ albicantes) are the most familiar examples, the lesions are in appearance and anatomy the same as in idiopathic striæ. They are especially developed during pregnancy, and at first are bluish-red from hæmorrhage, very itchy, and get white eventually. Any other cause of distension, such as ascites, ovarian or other tumour, may produce them in the abdomen, and lactation has the same effect in the breasts. I have also seen them on the shoulders and elsewhere from large symmetrical lipomata, and over the lower ribs and back from violent coughing. A similar kind of lesion, though usually classed with ordinary scars, is the atrophy from external pressure, such as is produced by corns, favus-crusts, etc., and the depressions remaining after absorption of inflammatory or

* Behrend, *Berlin. klin. Wochensch.*, 1885, No. 6, p. 88. Abs. in *Viertelj. f. Derm. u. Syph.*, vol. 1885, p. 346.

† Touton, *Deutsch. med. Wochensch.*, 1886, No. 1.

‡ Pospelow, *Ann. de Derm. et de Syph.*, vol. vii. (1886), p. 505, with photograph and reference to the other cases.

§ Quoted in *Lancet*, November 28th, 1891.

‖ Breisky, *Zeitschrift f. Heilkunde, Prag.*, March 15th, 1885.

other infiltrations of the corium, which ensue in many syphilitic * lesions, lupus, leprosy, and lichen planus. These scar-like marks, if of small size, gradually disappear or grow less distinct, from the contraction due to the natural elasticity of the skin.

Degenerative Symptomatic Atrophy. Here, fatty, hyaline, and lardaceous changes occur in the same way as described in idiopathic senile, degenerative atrophy, and are the consequence of chronic dermatitis, such as eczema, pemphigus foliaceus, pityriasis rubra, etc., perhaps by its setting up an endarteritis, which is always present to a greater or lesser extent in these cases, and so diminishing nutrition.

Treatment for all these forms of atrophy is unavailing.

GLOSSY SKIN.†

Synonym.—Atrophoderma neuriticum.

Symptoms.—Under this title, Paget, Weir Mitchell, and others have described an atrophy of the skin in the area of a nerve affected by disease or injury. It chiefly attacks the extremities, perhaps only one or two fingers; the skin of the affected part becomes very dry, smooth, and glossy, like a thin scar; the fingers are tapering, hairless, and almost void of wrinkles, and the colour is pink or deep red, not unlike chilblains, or mottled with patches of red and white, and the skin is easily inflamed, excoriated, and fissured. A severe and persistent burning pain (causalgia) precedes and accompanies this condition, and is very characteristic. The appendages of the skin share in these defects, hence the dryness, loss of hair, and changes in the nails, which Mitchell and Moorhouse and Keen regard as in themselves quite distinctive. The nail is curved both longitudinally and transversely, and there is sometimes thickening of the cutis, beneath the free end. In

* Under Auspitz's name of liodermia, Finger describes an extreme instance in *Viertelj. f. Derm. u. Syph.*, vol. ix. (1882), p. 21, with coloured plate.

† *Literature.*—Paget, "Some Forms of Local Paralysis," *Medical Times and Gazette*, March 24th, 1864. Weir Mitchell, *Injuries of Nerves and their Consequences* (Philadelphia: 1872). Moorhouse and Keen, *Gunshot Wounds and Other Injuries of the Nerves* (Philadelphia: 1864).

some cases, the skin of the third phalanx retracts, partially exposing the sensitive matrix; at the free end, the nail is also more separated than usual from the cutis, which is seen as a notched border through the nail. In the toes, painful and recurring ulceration occurs at the angles, with less deformity. Instead of dryness, the sweat is often increased considerably, is intensely acid, and sometimes offensive.

Etiology.—It follows such injuries to nerves as do not completely sever them, or it may arise from a neuritis being set up in a wound. It has also been found as a complication of gout, rheumatism, non-tuberculated leprosy, and following shingles, and in a few cases of chronic myelitis, in one of which there was associated muscular atrophy.

Pathology.—The disease is undoubtedly dependent upon inflammation of the nerve supplying the affected area, whether the neuritis is set up by disease or injury. In the cases associated with disease of the cord, the condition of the nerves was not examined. Whether the neuritis is interstitial or parenchymatous, or both, has not been investigated. In a case reported by A. E. Watson * of apparently spontaneous origin, the "causalgia" was very acute, lasted about twenty-four hours, and shifted from one hand to the other; the right hand suffered two attacks. The fingers were white and shiny during the attacks. The history suggests that the lesion was in the periphery of the nerve.

Treatment.—The condition tends to get well spontaneously, and only requires therefore protection from cold and other injurious influences. The causalgia is generally best relieved by the constant application of cold water, but in Watson's case, this aggravated the suffering, and immersion in very hot water produced immediate removal of the pain.

PERFORATING ULCER OF THE FOOT.

This somewhat rare disease comes under the care of the general surgeon rather than the dermatologist, and requires therefore only a brief notice here. Its neurotic origin has been well brought out in a paper by Savory † and Butlin, whose observations have been confirmed and extended by subsequent observers.

* *Lancet*, vol. i. (1890), p. 647.

† *Med. Chir. Trans.*, vol. lxii. (1879), p. 373, with coloured plate and microscopic drawings of nerves and full bibliography.

The exciting cause is pressure or injury of some kind to a foot, in which the protecting nerve influence is in abeyance, either from damage to the nerve centre, as in locomotor ataxy, which is the most common cause; to the nerve trunk (the posterior tibial), as in syphilis, leprosy, or other cause of neuritis; or to the peripheral terminations of the nerve, as in peripheral neuritis.

Gasguel* collected 91 cases, 84 of which were in males. The age was stated in 79: 3 were under twenty, 4 between twenty and thirty, 22 between thirty and forty, 31 between forty and fifty, and 19 were over fifty. In 69 cases, there was a central nervous lesion, 8 times there was peripheral nerve lesion, and 14 were diabetic. Thirty-two had tabes, 17 general paralysis, 8 symptoms of alcoholism, 4 traumatic disease of the cord; 8 had various cord lesions, 1 being Friedreich's disease.

Symptoms.—Although the foot is the usual seat of the so-called ulcers, Terrillon† showed a case to the Société de Chirurgie where the hand was affected at the junction of the ring finger to the palm. The most common position is where there is most pressure, such as over the metatarso-phalangeal joint of the great or little toe, or the pulp of the great toe, always on the plantar surface. There may be more than one on the same foot, and both feet may be affected. It is more correctly a sinus than an ulcer, and often begins by suppuration under a corn, burrowing into the soft tissues, and when the horny covering is thrown off, a sinus is exposed, leading down to the bare bone; sometimes the process is more acute, and a slough is rapidly formed, but the result is the same. As the pressure from walking is continued, the epidermis round the ulcer becomes much thickened, and forms a thick horny collar round the sinus; occasionally, there are granulations round the orifice. It is very indolent, generally painless, even on pressure, anæsthesia of the neighbourhood being the rule; but occasionally there is hyperæsthesia, and there is a tendency to abundant and fœtid perspirations of the affected foot.

The only affection from which it requires to be distinguished is an ordinary *suppurating corn*, unconnected with damage to the nerve of supply; this will be distinctly painful, the skin round will be very sensitive, and although there may be a sinus leading down to necrosed bone, treatment on ordinary surgical principles will

* *Thèse de Paris*, July 1890.

† Quoted in *Lancet*, April 11th, 1885, p. 676.

always be satisfactory. In the true perforating ulcer, the reverse is the case, although the sinus may be induced to heal under very prolonged rest. The bucket-leg is the most practicable way of resting the foot, without absolutely laying the patient up, but it is sure to break out again as soon as he begins to walk. Amputation of more or less of the foot by Chopart's, Syme's, or Pirogoff's operation is recommended in most surgical works, but the cause being unremoved, a fresh ulcer is very apt to form in the stump. The treatment suggested by Treves seems rational, and was successfully carried out in two cases. The thickened epidermis round the sinus was pared down completely, after softening by repeated poultices, and the sinus filled up with a cream of salicylic acid, glycerine, and ten minims of carbolic acid to the ounce, and after healing, which soon occurred, a thick perforated felt pad was worn over the sore, the hole corresponding with the former sinus, and care was taken, by attention to the construction of the stockings and boots, to prevent fresh injury. Beaven Rake, who has a large number to treat in the Trinidad Leper Asylum, recommends that stretching of the sciatic or posterior tibial nerve, free incision of the ulcer, and opening up the sinus, should be tried before amputation is resorted to.

MORVAN'S DISEASE.*

Synonyms.—Analgesic paralysis with whitlow; Syringomyelia; *Fr.*, Panaris analgésique.

This is another trophic affection from disease of the nerve centre, which only requires brief mention here. The first symptom is pain in the extremities, followed by analgesia, first of one side, then of the other, and then the formation of a succession of whitlows, which are usually painless, though the early ones are

* *Literature.*—Five memoirs by Morvan in *Gazette Hebdomadaire*, 1883-1889, and by Prouff, *loc. cit.*, 1887. Lecture by Charcot, *Progr. Médical*, March 1890. Translated *Phil. Med. Bulletin*, Nos. 10 and 11, 1890, from which the above description is chiefly taken. See also "Les altérations cutanées de la syringomyélie," G. Thibierge, *Ann. de Derm. et de Syph.* Bruhl's *Contribution à l'étude de la syringomyélie*, Paris, 1890, gives a very complete account. Also a case by Hughlings Jackson, *Lancet*, February 20th, 1892. In Part VI. *Internat. Atlas*, with plate xviii., L. Jacquet gives an account of a case of syringomyelia, with extensive trophic ulcerations on the head, neck, and shoulder.

sometimes painful. The whitlows are attended with, or are the result of, necrosis of the phalanges, which are cast off with much consequent deformity and crippling. There are usually only from two to six of these whitlows, which affect the upper extremities only, but one of Morvan's cases had nine. They may be distributed over many years, sometimes with long intervals of freedom. In Prouff's case, the earliest and longest on record, the duration was forty-four years (from twelve to fifty-two), and there were twenty years between the first four whitlows on the right hand and the last four on the left. There may be other trophic lesions of the skin, viz., fissures, shallow or deep, ulcers in the natural folds of the skin, almost amounting to the perforating ulcer, extending with suppuration to the tendinous sheaths (Charcot).

Other trophic symptoms are muscular atrophy and paresis, contraction of the fingers, and analgesia and anæsthesia, affecting the sense of pain, touch, and temperature, while in typical syringomyelia, tactile sensation is preserved, that of pain is absent, and the sensations of heat and cold are more or less lost. Nevertheless, since Joffroy, with and without Achard, has found syringomyelia at two autopsies of typical cases of the disease of Morvan, in spite of the latter's protests, there is a growing conviction that this condition is only a clinical variety of syringomyelia, in which the cavities are often produced by the absorption of gliomata, the central and posterior portions of the cord being the parts chiefly involved. Most cases occur between twenty and fifty, but twelve and sixty years are the extremes observed. It is more common in men than women. Hanot's case started definitely from a chill, the man having continued his work after having fallen into a river. A few have started from injury. In most, the cause is untraceable. The prognosis is not good and treatment can only be palliative. Charcot gives the diagnosis of Morvan's disease from scleroderma of the hand and anæsthetic leprous deformity of the hand, but the other symptoms of those maladies would be present, so that mistakes could seldom arise except from paying too exclusive attention to the hand lesions. Recently, however, Rendu * has met with a case from Tonkin with the special dissociation of sensory symptoms of syringomyelia, which Charcot, Leloir,

* Fr. Soc. Derm., *Ann. de Derm. et de Syph.*, vol ii. (1891), p. 409.

and Hallopeau considered to be anæsthetic leprosy, the patient having thickening of the ulnar nerve and paralysis of the orbiculares oculi, as well as trophic troubles of the lower limbs.

AINHUM.*

(The Nagôs native name, meaning "to saw.")

Definition.—An endemic disease, in which spontaneous amputation of the little toe occurs.

This disease occurs only in negroes and Hindoos. It is not uncommon on the Gold Coast and other parts of the west coast of Africa, and in Brazil, and is also to be met with in the West Indies, Western Virginia, North Carolina, India, and the islands of Nossi-Bé, Réunion, and Madagascar. It was first described by Clarke as "a dry gangrene of the little toe among the natives of the Gold Coast," and independently years later by Da Silva Lima, of Bahia, who collected fifty cases.

Symptoms.—The disease is a purely local one, and begins as a semicircular furrow in the digito-plantar fold of the fifth toe, starting from the inner and under surface, without inflammatory or subjective symptoms, except perhaps itching, preceding or accompanying it; nor is there at first any breach of surface or interference with the movements or sensibility. The furrow extends very slowly in depth, and towards the upper surface, eventually completing the circle and forming a groove all round, as if from constriction by a ligature, and with the same result, the portion beyond the constriction, swelling up to two or three times the normal size, and becoming separated from the rest, with the top part rotated outwards. While the constriction deepens, the tissues atrophy beneath, so that the toe is like a roundish tumour, with a narrow, flexible pedicle, which at this stage is

* *Literature.*—Clarke, *Trans. Epidem. Soc.*, 1860, vol. i., p. 105. "On Ainhum," by Da Silva Lima, *Amer. Arch. of Derm.*, 1880, vol. vi., p. 367—one of the best accounts of the disease. See also Hirsch's "Geographical and Historical Pathology," *New Sydenham Soc.*, 1886, vol. iii., p. 728, containing bibliography. Duhring, *Amer. Jour. Med. Sci.*, January 1884, with microscopical examination by H. Wile. "The Histology of Ainhum," by C. H. Eyles, *Lancet*, September 25th, 1886. *Path. Soc. Trans.*, vols. xviii., xix., and xxxii. (1881), p. 302; and Fox and Farquharson's *Endemic Skin Diseases of India, etc.*, App. vii., p. 114.

likely to ulcerate, with fœtid discharge and severe pain, until the now useless member is removed, either by the occurrence of gangrene, an accidental wrench, or being cut off by the surgeon or the patient himself, which he can easily do with little pain or bleeding. All this process is very slow, taking from four to ten years for the toe to be ready for removal.

Mr. Johnson Smith was kind enough to show me at the Seaman's Hospital, Greenwich, the only living case that has visited England. The patient was a stalwart negro sailor, æt. thirty-eight, from Jamaica, and he had noticed the disease for seven months. Unlike most cases, pain was the first symptom. This had persisted ever since, slight in the daytime, but severe at night, quite preventing sleep, and he therefore wished the toe removed. There was no ulceration; but in the plantar fold, opposite the metatarso-phalangeal joint, the epidermis was much thickened, and on the inner side, was a sulcus like a deep cut. On the upper surface the furrow was shallow but broader, and on the outer side what appeared to be a corn levelled up the sulcus. It is noteworthy that in Shepherd's case the disease began as a small pimple on the outer side of the toe. Not infrequently, the fifth or the fourth toe on the other foot, or the fourth and fifth of the same foot, or even the great toe (Crawford), are also attacked simultaneously or successively, and Eyles once saw it affecting a finger, but nine times out of ten it is confined to one or both little toes.

Etiology.—It occurs chiefly in adults who are young or in the prime of life, rarely in old age, and never under fifteen years. It affects the male sex much more than the female, and is sometimes hereditary (Da Silva Lima, Duhring, Dupouy). These facts, and its restriction to the dark races and to certain localities, are all we know of the causation of the disease. Some authors ascribe it to injuries resulting from the negroes walking barefooted. This is disputed, however, because freed negroes who wear shoes are also affected, but it is notorious that they take them off whenever they can.

Pathology.—Nothing is known of its pathology; but its histology has been many times investigated. According to Eyles, one of the most recent observers, there is hyperplasia of the epidermis, especially of the horny layers, and downgrowth of the interpapillary processes. In the corium, there is great increase of fibrous tissue and fat; in the vessels, and in the larger arteries, there is

great increase of the adventitia, the middle coat is but little altered, while the intima in most of the vessels is much thickened, so as to encroach upon, and even fill up, the lumen, *i.e.*, there is endarteritis obliterans. In the bones, the condition is one of "rarefying osteitis." The bone tissue is gradually absorbed, and is replaced by fibrous tissue. Other authors describe the conversion of the soft tissues and bone into a uniform fatty mass. The line of the division may occur either through the middle of the proximal phalanx, or at the proximal interphalangeal joint (Crombie).

Treatment.—Da Silva Lima found that at the commencement division of the contracting band by incision at right angles to its course cured the disease. Murray of Trinidad confirms this. At the later stage, there is nothing to be done but to amputate the toe as soon as it becomes painful or troublesome.

Proust * has endeavoured to show that ainhum is pathologically identical with congenital amputation, but this view is not accepted.

* *Gazette des Hôpitaux*, April 4th, 1889. See also the refutation by Trélat, *Gaz. Hebd. de Méd. et de Chir.*, February 28th and March 7th, 1891, pp. 102 and 113, and abs. in the *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 614.

CLASS VI.

NEOPLASMATA—NEW GROWTHS.

This is a large, important, and somewhat heterogeneous group, of which the main feature is a growth or infiltration of new elements in the skin. It may be subdivided into—

1. Degenerative neoplasms, or such as are characterised by the presence of marked degenerative changes, comprising molluscum contagiosum, colloid of the skin, and xanthoma.

2. Infiltrative, in which the neoplasm consists chiefly of infiltration of granulation cells in the cutis, comprising such diseases as lupus, scrofuloderma, tuberculosis, syphilis, lepra, and rhinoscleroma.

3. Tumours of benign nature, such as keloid and fibroma affecting the connective tissue, neuromata affecting the nerve tissue, myomata the muscle tissue, nævus vascularis and telangiectasis the blood vessels, lymphangiectodes and lymphangioma tuberosum the lymphatics.

4. Tumours more or less malignant in their characters and course, comprising carcinoma, Paget's disease of the nipple, epithelioma, rodent ulcer, sarcoma, mycosis fungoides, yaws, verruga Peruana, and furunculus orientalis. The pathological position of the last four is somewhat doubtful.

MOLLUSCUM CONTAGIOSUM.

Deriv.—Molluscum, a mollusc, from *mollis*, soft.

Synonyms.—Molluscum sebaceum; Molluscum sessile; *Fr.*, Acné varioliforme (Bazin); Molluscum verrucosum (Kaposi).

Definition.—Small sessile or pedunculated, gland-like tumours of a pearly white or pinkish colour, which are formed in the rete.

This disease is not very common in England, and it appears to be quite rare on the Continent and in America, though it is doubtless

more common than dermatologists' statistics suggest, 2 in 1,000 in my practice.

Symptoms.—The tumours are nearly always multiple, varying in number from two or three up to many scores, and in size from a small pin's head to a large pea, the average being one-eighth of an inch. They are of firm consistence, nearly hemispherical in shape, but flattened on the top and usually umbilicated, while in the larger ones there is a small central hole, leading to the interior of the tumour, through which milky fluid or a solid waxy mass may be expressed. At first they are sessile, pearly, or waxy-looking, but as they grow larger, the contents become more opaque and yellowish, while the skin over them is of the normal hue unless from vessels coursing over them, and they may become more or less pedunculated. They are usually discrete, and the commonest positions are the face, neck, scalp, breasts, and genitalia, but they may form anywhere except on the palms and soles. They begin as only just perceptible elevations above the skin, grow slowly, and after attaining to their full size, may remain unaltered for a long time, or they may inflame, suppurate, discharge their contents, and disappear, perhaps without leaving even a scar.

Variations.—A few cases of **molluscum giganteum** are recorded by Hebra, Virchow, Laache,* Walter Smith,† and E. Wilson respectively. In Laache's case, the tumour was single, grew from the occipital region, and was the size of two fists ; but the microscope proved that it was a molluscum contagiosum. Confluent molluscum without much elevation is rather more common. Another form that I have seen is the very opposite of this ; on the back of the wrists and over the knuckles of the left hand, in a woman æt. eighteen, were congeries of tumours from a pin's head to a hemp seed in size, the larger tumours being generally compound. They were distinctly raised above the surface, obtusely conical, with a flat top, of a violet hue, due to dilated vessels at the periphery, while the central part was of a yellowish-white colour, due to a friable plug, which could be squeezed out with moderate pressure, while the whole contents could be evacuated with strong

* Abstract in *Amer. Jour. of Cut. and Ven. Dis.*, February 1885, p. 64.

† In W. Smith's case, the tumours were very numerous and general, and one was three inches and a quarter by three inches. *Dub. Jour. of Med. Science*, November 1878. He also quotes E. Wilson as having had a case where the tumour was three and a half inches in diameter.

pressure. In the compound tumours, there were two or three plugs, while in the scattered ones, of which there were a few on the back of the right hand, and also upon the face and the angle of the mouth on the right side, there was only one such plug. A small piece of skin containing three small tumours was excised, and microscopical examination showed it to be of molluscous structure, with a single, flat, flask-shaped, acinus-like downgrowth of the

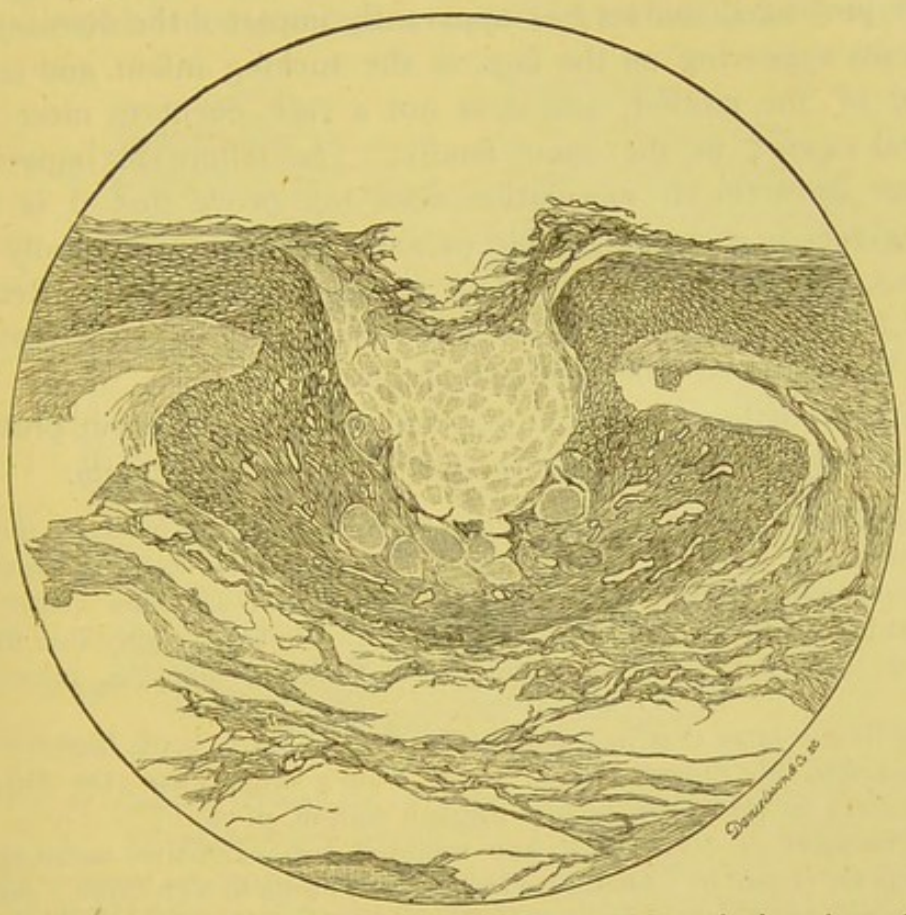

Fig. 26.—Peculiar form of molluscum contagiosum with a single acinus, formed from an outgrowth of the rete mucosum, with central plug of molluscous material. The bodies below, in which the change is less developed, are not unlike psorosperms.

rete, containing a plug of altered rete cells like molluscum bodies, while there was slight leucocytic infiltration in the corium round the tumour. Some of the growths were touched with the acid nitrate of mercury; a vertical incision was made into the rest and the contents squeezed out, and there was no return of them. A peculiar case, with many of the characters of molluscum contagiosum, but also with many differences, is recorded by Payne.* There were in the papules, bodies structurally like

* *Brit. Jour Derm.*, vol. iii. (1891), p. 250.

psorosperms, but he was inclined to regard them as really altered cells.

Etiology.—They are much more common in children, than in adults, in the poor, than in the rich, and it is said, in females, than in males. Most English authorities agree that the tumours are contagious, while in Germany* and in America† the contagious theory is not generally accepted. There are many cases where prolonged contact has apparently imparted the disease, *e.g.*, mollusca appearing on the face of the sucking infant and on the breast of the mother, and it is not a rare event to meet with several cases‡ in the same family. The failure to impart the disease by artificial inoculation does not prove that it is non-contagious, as many vegetable parasitic diseases, admittedly contagious, cannot be propagated at will; while Patterson, Retzius, Vidal,§ Stanziale, Horab, Pick, and Haab, have been successful in their inoculations, though with many failures.

Turkish baths‖ are said to produce the disease, but probably they merely offer favourable conditions for the contagium.

Pathology and Anatomy.—When a vertical section is made through the centre of a small well-developed tumour, it is seen to consist of wedge-shaped lobules, all converging towards a common centre, the central being the smaller end; between each lobule is a very thin fibrous septum, and the whole is enclosed in a fibrous capsule, incomplete

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* Caillaut relates that in a children's ward of thirty beds, fourteen were affected with this disease, which began from a single case (*On Diseases of the Skin in Children*, second English edition, p. 78).

† Mittendorf of New York has reported two extensive outbreaks in asylums for children. Allen also records fifty cases in a children's asylum. Stellwagon and Graham have also reported outbreaks.

‡ See Duckworth's paper on cases favouring the contagious theory (*St. Bart.'s Reports*, 1868, p. 211).

§ Model 515 in the St. Louis Museum, showing a successful inoculation on an infant's arm.

‖ I have seen three such cases: one, a gentleman, had numerous mollusca on the nape and back of the poll, where it had been in contact with the wooden head-rest at the Turkish bath; while in the other, a lady, many scores of translucent pearly mollusca were scattered all over the back; she had lain on the felt-covered benches without any intervening cloth. In the third, a lady who took a Turkish bath every other day, but in her own house, the mollusca were numerous on the trunk and arms. The skin on and round the tumours was red, and they were pruritic. The source of infection was her own son, who said that many of his schoolfellows had similar "warts." Hutchinson says that all his male cases were frequenters of the Turkish bath; he suspects the towels or gloves.

above, with its base in the corium. While the border is continuous with the epidermis, each lobule is bounded by palisade epithelium, and round, nucleated epithelium lies adjacent, but even in many of the lowest cells, the molluscous degeneration has commenced. This consists of a change which renders the cell substance opaque, white, and homogeneous, like amyloid degeneration, and this gradually encroaching on the cell substance ultimately fills up the cell, enlarging it, obliterating its structure, and making it quite homogeneous, and it is then the so-called "molluscum body." These bodies accumulate at the mouth of the lobule, and with those from the other lobules form a yellowish

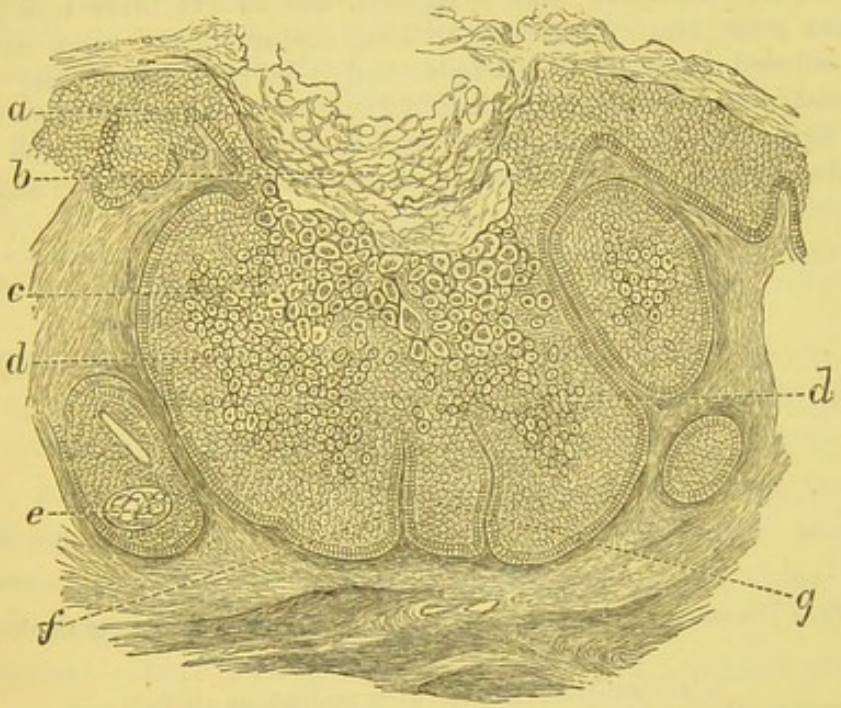

Fig. 27.—Section through the centre of a very small tumour of molluscum contagiosum just perceptible to the naked eye. × 125.

a, rete mucosum continuous with the tumour; *b*, plug in centre of tumour formed by an accumulation of molluscum bodies; *c*, cells of the rete in process of conversion into molluscum change; *d*, *d*, cells in an earlier stage of conversion into molluscum bodies; *g*, pseudo-lobe of tumour formed by vertical and lateral growth of the interpapillary processes; *f*, fibrous septum between lobes of tumour formed by compression of papilla; *e*, sebaceous gland of small hair follicle.

mass, which does not stain with carmine or other dyes, and the horny layer over it giving way, some of this mass often falls or is squeezed out, and the hole that is usually described at the mouth of the follicle is formed. The resemblance to gland structure is very complete, and the old view that the tumour is merely an enlarged and changed sebaceous gland, is still supported by Vidal, Kaposi, Hutchinson, Tilbury Fox, Walter Smith, etc. Virchow first put forward another view which is gradually gaining ground, viz., that the disease is in the Malpighian layer, and he thinks that the disease begins in the hair follicles; the observations of Boeck, Lukomsky, Piffard, Sangster, Thin, myself, etc., confirm this view, but it is only by examining the tumours in the early stage that this can

be made out. Another proof that they are not sebaceous gland structures is that they have been observed on mucous membranes (Colcott Fox). The following description is from my own observations. Taking a tumour at the earliest period recognisable, when it is only about the size of a pin's point, a vertical section shows the molluscum bodies accumulated in a small mass at the top of the rete, and in the granular layer, below this, there is only a partial change in the rete cells, and it gets gradually less until they are quite normal, or only a very few of them adjacent to the boundary of the palisade cells are affected; the interpapillary processes are already enlarged, both vertically and laterally, and the papilla is thus narrowed and elongated, but as yet there is no sign of gland-like structure. The most striking feature is the small accumulation of altered cells at the surface, and it is evidently a rete change. Many sebaceous glands and hair follicles are quite healthy, but in some of the hair follicles, the cells present the same alteration, the process being always most advanced close to the shaft (fig. 28). Taking next

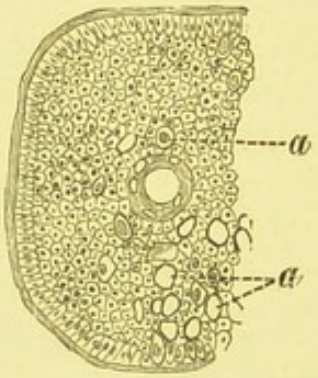

Fig. 28.—Transverse section of a hair follicle in an early stage of molluscum contagiosum. × 550.

a, *a*, epithelial cells showing molluscum change.

a tumour slightly more advanced, as in fig. 27, it is found to consist of wedge-shaped lobes separated by a fibrous septum, formed by the compressed papilla, elongated by the continued downgrowth of the rete; in the centre of the tumour, are molluscum bodies, compressed above so that the outline of the component cells is indistinct or lost, and if the section have been made through the centre of the tumour, the rete is seen to be continuous from the surface to the deepest part of the tumour, forming a flask-shaped depression, bounded by the palisade cells giving the appearance of the formation being due to an inversion of the whole epidermis, and the fibrous septa are the obliterated papillæ. Thin considers that the molluscum change commences in the cells of the upper layers of the rete; Campana, that it begins in the stratum granulosum; I think it begins at the deep part of the rete, and increases as the cells progress to the surface; while Lukomsky asserts that molluscum bodies are derived from leucocytes.

Since psorosperms have appeared in the pathological field, their presence has been invoked here also, and according to Neisser and Mansuroff,*

* An abstract of Mansuroff's paper and an account of an interesting case are in *Brit. Jour. Derm.*, vol. iii. (1891), p. 266.

their development in the epithelial cells is the essential cause of the disease of the molluscous bodies. Török, Tommasoli, and Stanziale controvert this from the staining reactions, and while the first two observers regard the epithelial change as of colloid nature, Stanziale thinks it is a modified cornification, and Piffard has found these bodies react to polarised light like corneous epithelium, but what the reaction of psorosperms is to polarised light has not been investigated. The nature of the materies morbi therefore still remains to be proved.

Shaw and Macallum have made observations on material obtained in an outbreak in a home, reported by Graham * of Toronto. Shaw found a micrococcus which stained well with Gram's method and with methylene-blue carbolic fuchsin, but not with Neelson's method: with every precaution to prevent accidental contamination, its presence was constant. Macallum's very careful observations led him to conclude that the earliest stage of the molluscum corpuscle was a nucleolus with a strong affinity for eosine, extruded or migrated from the nucleus. This gradually grows and fills up the cell, undergoing a special form of degeneration, which readily absorbs eleidin and its derivative, keratin. He therefore is also against the coccidian theory, though he cannot explain what starts the morbid process.

Diagnosis.—The little sessile or slightly pedunculated, solid tumours, with their central depression, once seen would scarcely be mistaken, but when numerous and pearly they are very like vesicles, such as those of varicella. Their duration and the effect of pricking, which would demonstrate that they were solid, and the contents under the microscope showing the molluscous bodies, would distinguish them.

Treatment.—This is simple and effectual. The tumour should be split from below upwards with a sharp knife, and pressure being made at right angles to the incision with the thumb nail and handle of the scalpel, the contents are readily evacuated; rather free bleeding is easily stopped by a pad of lint. Some recommend that the interior should be touched with nitrate of silver, but it is unnecessary; others dispense with the incision, but this is almost painless, and the extra pressure required to empty the tumour without it, gives much pain. Very small ones may be touched with the end of a match dipped in the acid nitrate of mercury.

DARIER'S DISEASE.†

Synonyms.—Psorospermose folliculaire végétante (Darier); Keratosis follicularis (White); General hypertrophy of the sebaceous system (Lutz); Ichthyosis sebacea cornea (E. Wilson).

* *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. x. (1892), p. 89.

† *Literature.*—"Psorospermose folliculaire végétante," *Ann. de Derm.*

Although Darier was not actually the first to describe cases of this affection, his remarkable work on its pathology has, by general consent, given him paternal rights, and the above name recognises this and is more convenient than Darier's own too complicated designation, which commits us to a view of its pathology which subsequent research may show to be erroneous.

Symptoms.—The disease begins on the face or trunk, but ultimately, the regions chiefly affected are the scalp, face, front and back of the trunk, flanks, and axillary and inguinal regions, where it reaches its acme of development. The primary lesion is a lentil to pea-sized papule of a dirty red colour, with a firmly adherent greyish-brown, black, or grey horny crust inserted into it. This little sebaceous horn on removal leaves a conical, funnel-shaped depression in the little papule, which is seated at the pilo-sebaceous follicle. Similar plugs may be embedded in the skin, without a projecting portion above the surface. These plugs, whether above or below the surface, can be squeezed out by the thumb-nails like the contents of molluscum contagiosum, which they most nearly resemble, but they are not translucent, and are not inflammatory-looking. The lesions are discrete at first, but increase in numbers until they become confluent in some parts, and the patch is then covered with a brownish, greasy layer, rough to the touch from the irregular projections. The disease progresses slowly as a whole, but there may be acute exacerbations, when a fresh area of considerable size may be invaded with innumerable non-inflammatory papules with very small grey crusts; thus the whole upper limbs were affected in a single attack in Darier's case.

As time goes on, the papules increase not only in numbers, but in development, forming reddish elevations, with a plugged apex or crateriform opening. The horny crusts sometimes reach a

et de Syph., vol. x. (1889), p. 597,—a histological study, with plates. Thibault's *Thèse de Paris*, 1889, with the same title, gives the clinical account of Darier's case. "Keratosis Follicularis," J. C. White, *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vii. (1889), p. 201, and 1890, second case, p. 13. Lustgarten, *loc. cit.*, January 1891,—this was the case recorded by Bulkley in *New York Med. Jour.*, with a review of the subject. "Vier Fälle von Darier'scher Krankheit," C. Boeck, *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 857, with histology. "Ueber die Darier'sche Dermatose," Buzzi und Miethke, *Monatsh.*, vol. xii. (1891), pp. 9 and 59. *Brit. Jour. Derm.*, vol. iii., 1891, gives abstract of two Russian cases. "Ichthyosis Sebacea Cornea," *Diseases of the Skin*, 1867, p. 358, by E. Wilson.

considerable size; in one of White's cases, one horn projected three-quarters of an inch.

The base of the papule may be denuded of its epidermis, and sebum or sebaceous pus squeezed out. Large masses or tumours may be formed by confluence, especially on the scalp, face, trunk, and axillæ, but reach their highest development in the hypogastric and inguinal regions and the anal cleft, where they undergo papillomatous development. This vegetating condition, as Darier calls it, constitutes the second period of the disease. In Darier's case, there was also a horizontal band of extreme confluence just above the umbilicus. In Lutz's case, at the level of the breast, was a pedunculated, flask-shaped growth, resting on the chest wall; it was six inches long, and three inches in diameter at the base and one at the summit.

Other cases have had similar tumours, but not so large. They are apt to be superficially ulcerated at the follicular orifices, with copious discharge of highly offensive sero-pus. The denuded surface is very painful, from exposure to the air and friction of adjacent surfaces, or of the clothing, preventing sleep and motion, and wearing the patient out. The tumours may also suppurate *en masse*. In Thibault's case, where the scalp was affected, the surface was covered with abundant, dirty yellow, fatty scales, and when these were removed, the scalp had a lobulated aspect; the nutrition of the hairs was unaffected, but they were united into brush-like clumps. On the palms of Darier's case, there were small yellowish points on the papillary ridges, from thickening of the horny layer.

Etiology.—Out of twelve cases, ten have been males. It begins most frequently in childhood, and generally on the forehead. White's two cases were father and daughter, but they had not lived together for many years. Boeck's third and fourth cases were the sons of his second case. In White's first case, a soldier, it began on the shoulder where his knapsack rubbed it. These meagre facts are all that we know at present, as regards etiology.

Pathology.—According to Darier's researches, to the anatomical accuracy of which I can testify, as he was kind enough to show me his specimens, at the base of the horny plugs are found peculiar round cells, surrounded by a refracting, double-contoured, thick membrane, within which is a granular protoplasm with nucleus

and nucleoli. Morphologically, the structure exactly resembles coccidia of the parasites called "psorosperms," which Leuckart found in the liver of the rabbit, and Darier regarded these bodies as parasites of this nature, and the cause of the disease. Other observers—Boeck, Buzzi, Miethke, Lustgarten, Bowen, etc.—have also found these bodies, but while some accept Darier's view of them, others consider them to be metamorphosed epithelial cells. On the one side, are their constancy and morphological resemblance to psorosperms; on the other, are the utter failure to detect any signs of vitality in them, and their resistance to powerful reagents such as, acetic, nitric and hydrochloric acids, liquor potassæ, and ammonia, while the coccidia of rabbits do not exhibit this resistance, except to ammonia. The very diversity of the diseases in which similar bodies are found is an additional puzzle (see also the general section on pathology,* and for further discussion of the subject a paper by J. Hutchinson, jun.). Psorospermosis was also one of the subjects for discussion at the second International Congress of Dermatology at Vienna, but without any further light being thrown upon the subject. The question therefore must be considered as still *sub judice.*

Diagnosis.—Although at a first glance, the aspect on the upper part of the trunk suggests lichen planus, closer inspection shows, that the elementary lesions are more like molluscum contagiosum, and Mansuroff reports, what he considers, a mixed case of these two diseases. The central expressible plug is very like molluscum contagiosum, but instead of being pearly the base is dirty reddish in colour, elevated, and crateriform when emptied. The slow, continuous development, the wide extent, and the vegetating tumours of the inguinal regions, with the peculiarly offensive secretion, will remove all doubt in the late stage. Piffard does not consider Morrow's† case as of the same nature, though it has been quoted as similar; its description rather suggests an extensive lichen pilaris or spinulosus, in which also a horny plug can be picked out, leaving a crateriform opening.

Prognosis.—No case has yet been reported as cured or even materially benefited by treatment; it is slowly progressive, with tendency to aggravation rather than amelioration, but without much injury to health as a rule.

* *Brit. Jour. Derm.*, vol. iii. (1891), pp. 245, 277.

† *Amer. Jour. Cut. and Ven. Dis.*, vol. iv. (1886), p. 257.

Treatment.—In view of the supposed pathology and the failure of the measures hitherto adopted, I should be inclined to try soft-soap inunctions, followed by sulphide of potassium baths, 4 oz. to 30 gallons, the patient remaining in an hour every day. The various sulphur-containing spas—Harrogate, Strathpeffer, Luchon, and Aix-la-Chapelle—would fulfil similar indications. In an early stage, with limited distribution, complete evacuation of each lesion might be effectual, as it is in molluscum contagiosum.

XANTHOMA.*

Deriv.—ξανθός, yellow.

Synonyms.—Xanthelasma; Vitiligoidea; Molluscum cholestérique (Bazin); Fibroma lipomatodes (Virchow).

Definition.—A fibro-fatty neoplasm forming yellow plates or nodules in the corium.

Xanthoma is not a common disease under any circumstances, but the cases in which it is limited to the eyelids (X. palpebrarum) are much more frequently met with, than those where the lesions are more generally distributed (X. multiplex).

It occurs in two forms, in plates (**X. planum**), and in nodules or small tumours (**X. tuberculatum or tuberosum**); they represent little more than differences in position, shape, and degree of development.

Symptoms.—**Xanthoma palpebrarum** constitutes the great bulk of the cases, and is almost always in **plates**. It usually commences on the internal canthus of the left upper eyelid, and by the gradual coalescence of several patches, sometimes forms a semicircle round the eye. Sooner or later, similar patches appear on the right side, the disease being always symmetrical if it has been present long enough, though the left side is naturally more advanced in

* *Literature.*—Pye-Smith, *Guy's Hospital Reports*, 1877. Hutchinson, "Clinical Report on Thirty-six Personal Cases of X. palpebrarum," *Med. Chir. Trans.*, vol. liv. (1871), p. 171 (some of the statements require some modification in the light of further experience). Gendre, *Paris Thesis on Xanthelasma*, 1880. Report of Xanthoma Committee of the Path. Soc. on Startin's and Mackenzie's cases, vol. xxxiii. (1882), p. 376. In the same volume is a very complete *résumé* of the clinical facts up to that date, with tables of X. multiplex cases.

development. The plates are imbedded in the corium, very slightly or not at all raised above the surface, of a chamois-leather-yellow colour, which becomes more distinct when the skin is stretched, of irregular outline, but tending to be elongated, from about an eighth of an inch to one inch in their long diameter, quite soft and smooth to the touch, and the skin does not seem thickened when pinched up. With a lens, the patches can often be seen to consist of an aggregation of small yellow granules, which usually have a central pinkish punctum.

The **nodules** are of the same colour as the plates, project more or less above the surface, and as a rule are from a millet seed to a large pea in size, but may even be as large as a small apple. The small ones are convex, roundish, or oval, often have fine tufts of vessels over them, and are quite soft and smooth to the touch. The larger tumours, being compounded from the smaller ones, are irregular in contour and of more or less firm consistence, according to the amount of connective tissue they contain. Unless there is jaundice present, the skin round and between both nodules and plates is quite normal.

X. multiplex in the adult, is almost invariably associated with jaundice of long standing, and the lesions are both in plaques and nodules. Its distribution may be very wide, affecting not only the skin, but also the mucous and serous membranes and the tendons. The most common positions are the eyelids, where it generally commences, the palms and soles and backs of the hands and feet, especially the knuckles, the elbows, knees, buttocks in and near the cleft, and round the anus, and the flexures generally.

The plaques are most frequently found on the eyelids, flexures, and mucous membranes, and the nodules on the extensor aspects, especially on parts exposed to irritation, like the knuckles, elbows, and knees. Symmetry is observed in multiple as well as in eyelid cases, and the limbs are much more involved than the trunk.

As a rule, the disease gives rise to no inconvenience except from its disfigurement or position ; sometimes, however, burning, pricking, or itching has been experienced, and occasionally the sight has been interfered with by the new growth overhanging the eye, or by its size interfering with the movement of the eyelids, and when it is on the palms or knees, grasping or kneeling may be attended with discomfort, or even pain.

In most instances, the lesions appear gradually, and increase slowly by aggregation; then after months or years, development ceases, and there is no further alteration; in three instances, however, involution has spontaneously occurred after several years, without any pigmentation or scarring being left, and in one other case, apparently as the result of treatment.

Variations.—The plane form may be seen in lines or striæ, especially in the flexures and on the palms and soles; in papules and macules as well as in plaques, and accordingly, some authors give names to all these forms, such as **X. lineare vel striatum, X. maculatum et papulatum,** representing for the most part early lesions of which the patches are formed. Then some would make a **X. tuberculatum** for the smaller and **X. tuberosum** for the larger tumours, but these are unnecessary refinements. The colour is not always like chamois leather; it may be of any shade of yellow, from yellowish white upwards, and a certain amount of blackish pigment may, in rare instances, be seen in the lesions. Abercrombie showed me a case at Charing Cross Hospital due to jaundice, in which, along with the ordinary lesions, the front of the neck and lower lip formed one large patch of a dirty, slightly yellowish-white colour. There was no perceptible elevation or thickening of the skin, but the natural depressions were exaggerated like orange peel. The less common positions for X. multiplex on the skin are the ear, neck, back, and chest; in Hardaway's case, the lesions were distributed like zoster over the ninth and tenth rib-spaces of the right side, the prepuce, glans, and other parts of the penis and scrotum, and under the nails. It has been observed on the mucous membranes of the cornea and conjunctiva, the sides of the tongue, the angles, roof, and floor of the mouth, the palate, pharynx, larynx, trachea, bronchi, œsophagus, capsule of the liver and spleen, the peritoneum, round the rectum, the lining of the bile ducts, and the inner coat of the arteries and on the sheaths of tendons, such as the Achilles tendon and those of the extensor aspect of the fingers. Then the lesions may first appear on, and even be restricted to unusual positions, such as the outer canthus, the cheek, the side of the neck, nates, the root of the penis; and X. multiplex has begun on the elbows, the flexures of the fingers and palms, and appeared on the eyelids subsequently; in Robinson's case, it came in a large patch on each elbow, and did not affect any other parts. This irregularity of distribution is more common

in children and in congenital cases. In Köbner's case, a man æt. twenty-seven, on the other hand, the tumours were reddish-brown or reddish-violet, and situated in lines along the axillary folds and in the axillary region generally; their colour was due to their development in capillary nævi, of which there were a large number besides the X. nodules; it began when two years old, the mother said. Besides this association with vascular nævi, Köbner records a case which was associated with fibroma, and Hutchinson one with fusiform enlargement of many tendons. The case of Startin junior, a child, also had fibroid thickening round the joints, with xanthoma chiefly round the anal cleft and on the limbs.

Children.—When the Xanthoma Committee published their report, only eight cases were known. Their statements were to the effect that cases before puberty are structurally the same as adult cases, but etiologically different, having no traceable connection with hepatic disease, but are in some cases, probably hereditary, in some congenital; that the eyelids always escape, that the eruption is always multiple, and that there is a great tendency to nodules. About a dozen cases have come to light since this, which modify some of these statements. In the case of Vincentiis,* a girl of twenty, it began when five years old without apparent cause, affected the eyelids, shoulders and hands, in plaques and nodules. In a case of Barlow,† congenital, but with subsequent development, in a boy nearly seven years old, it was also on the eyelids in patches, and there was yellow pigmentation on the lobes of the ears and elsewhere. In a still more remarkable unpublished male case of his, which I saw, the disease began when a year old, without known cause, in the right upper eyelid; at six years old, the lesions were in patches and nodules, surrounded both orbits, and were deeply pigmented, of a dull dark brown colour in the greater part, and dull yellow in the rest; there were more typical lesions in other parts of the face and on the back of the forearms; the child presented some signs of hereditary syphilis, and had an enlarged liver and spleen. Jackson's‡ case was remarkably extensive, the eyelids, especially the right, were much affected, and no part, except the hands, feet, and scalp, was quite free; it was said to have

* Quoted by Chambard, with critique of histology, in *Ann. de Derm. et de Syph.*, vol. v. (1884), p. 81.

† *Path. Trans.*, vol. xxxv. (1884), p. 405, with coloured plate.

‡ *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. viii. (1890), p. 241.

commenced when three months old. Gwynne of Sheffield had a case of a boy æt. nine, in whom the disease began when four years old, first on the elbows, then over the tendo Achillis, on the web of the fingers, and on the ears. Nothing in himself or in his family history to account for it; the lids were not affected, but they were in Letzen and Knauss's * case, which also began when four years old on the eyelids, after suffering from many widespread abscesses, and, as in Startin's case, the nodules were abundant on the borders of the anal cleft.

In a case reported by A. Pönsgen,† a boy æt. twelve years, the eyelids escaped, the limbs were chiefly affected, and the disease, which began when he was ten years old, was associated with aortic stenosis, rheumatic nodules, and fatty tumours.

In a case of my own, a healthy boy of two years, there was a single oval yellow nodule, five millimetres long, on the left lower eyelid, which had been growing six months; it was excised, and proved to be of the usual structure.

In another case, a boy of six, brought to the Shadwell Hospital for articular rheumatism, there was a smooth flat patch on the middle of the right eyelid, of a buffy white colour, and made up of slightly raised, soft, millet-seed sized granules.

I have also met with a yellowish-white patch, exactly like xanthoma, imbedded in the tongue near the tip, to the right of the raphé, in a female infant æt. three months; it was first noticed when the child was two weeks old, and was most likely congenital.

Probably, therefore, slight developments of xanthoma are not so rare in children as is generally supposed, but give no trouble and are overlooked. It is noteworthy that in all these three cases, the lesions were unilateral.

Etiology.—The etiological relations are the most interesting features in the disease, but it is essential to consider eyelid apart from multiple cases, and those before puberty from those after that period. Taking X. palpebrarum first, it is certainly more common in females than males, but owing to these and multiple cases being mixed up in most statistics, it is impossible to state in what proportion; Hutchinson's thirty-six cases make it three to two. Most

* Virchow's *Arch.*, vol. cxvi. (1889), Heft. i., with plate.

† Virchow's *Arch.*, February 1883, with *résumé* of whole subject of xanthoma, and extensive collection of cases.

cases begin over forty years; the extremes, excluding children, are twenty to eighty-four (Hutchinson). The disease shows remarkable family prevalence, and may be hereditary. In Church's series one male out of five, and out of twelve females who had reached the age of forty, three of the first generation and two of the second were attacked. Hilton Fagge mentions an instance in which mother and daughter were affected, and the disease had existed for four generations in their family. It may also skip a generation; thus Hutchinson records an instance of two brothers and their paternal grandmother having it.

Of other conditions, dark-complexioned people, and those with a tendency to deep coloration about the orbit, are certainly more liable to it, but migraine is the most important factor; half of Hutchinson's cases suffered from it. Gout and perhaps ovarian disturbances are answerable for a certain number; and hepatic derangements, especially such as lead to jaundice, are frequent, one-sixth of Hutchinson's cases having suffered from jaundice; at the same time it is much less frequent than in X. multiplex. In one case I met with, there was diabetes insipidus with some gouty tendency.

In X. multiplex of those above puberty, there are probably not above sixty cases on record. Four-fifths of these have been associated with chronic jaundice, which has been due in different instances to stricture of the duct, gall-stone, hydatids, cancer, red atrophy, and cirrhosis combined with enlargement. It can scarcely be doubted, therefore, that jaundice is an etiological factor, but in what way is not apparent. In six cases without jaundice, including one of my own, there was a history of migraine, and the sister of my case had eyelid xanthoma on the right side and migraine; another had had syphilis; and there was no obvious cause in the other three. The cases associated with diabetes mellitus present many peculiarities, and are described separately.

Xanthoma below puberty, is still rarer than above it, less than a score of cases being known. It is not associated with jaundice, and beyond showing a family prevalence, being occasionally congenital and hereditary, its etiology is obscure, but in several instances a gouty and rheumatic inheritance has been present.

Pathology.—The process is essentially that of a connective-tissue neoplasm in the corium, whether inflammatory or not is disputed, in the meshes of which lie large epithelioid, fattily degenerated

or infiltrated cells, probably derived from the connective-tissue elements, while yellowish-brown pigment is deposited in the rete. For my part, I consider inflammation as the primary feature, and the xanthoma cells and the connective-tissue growth secondary. Köbner thinks they are derived from embryonic remnants.

Anatomy.—The anatomy has been investigated recently by myself, and by numerous observers, of whom Chambard,* Balzer,† and Touton ‡ have made the most complete examinations. According to Chambard, there are two processes going on, an increase of connective tissue and a fatty

Fig. 29.—Large xanthoma plaque from eyelid. 2-in. oc., ⅓-in. obj.

a, rete Malpighii, many of the cells of which are undergoing vacuolation as at *e*; *b*, cylindrical masses of xanthoma cells formed round a vessel; *c*, hair follicle; *d*, multi-nucleated granular xanthoma giant cell.

degeneration or deposition, the results of a chronic inflammatory process; in the soft plaques, the fatty change, and in the nodules, the connective-tissue growth predominates, greatest in the larger and firmer ones.

Touton disputes these simultaneously progressive and retrogressive pro-

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* Chambard, "Des formes anatomiques de xanthélasma cutané," *Archives de Physiologie*, 1879, p. 641, with plates.

† Balzer, "Recherches sur les caractères anatomiques du xanthélasma," *Archives de Physiologie*, 3me serie, 1884, p. 65.

‡ Touton, "Ueber das Xanthom insbesondere dessen Histologie und Histogenesis, *Viertelj. f. Derm. u. Syph.*, vol. xii. (1885), Heft. i., p. 3, with plates and full references to previous observations.

cesses; he regards xanthoma as non-inflammatory, and as a veritable new growth, composed of elements which are not normally present in the corium. The "xanthoma cells," which he says are infiltrated with fat from the first, have a distinct membrane, finely granular or fibrillated contents, and large round or oval nuclei. He thinks there are mixed tumours, such as fibro-sarco-myxo- and cyst-adeno-xanthomas, and that there is cystic transformation of the confluent destroyed xanthoma cells. Balzer found what he considered to be micrococci in the affected tissues, and concluded that xanthoma is therefore a parasitic disease, and that general infection may ensue, from the at first local affection of the eyelids. No one accepts this theory, which does not at all accord with the general facts; moreover, the specimens were taken twenty-four hours after death. I examined a large plaque from the eyelid of a woman, who was a martyr

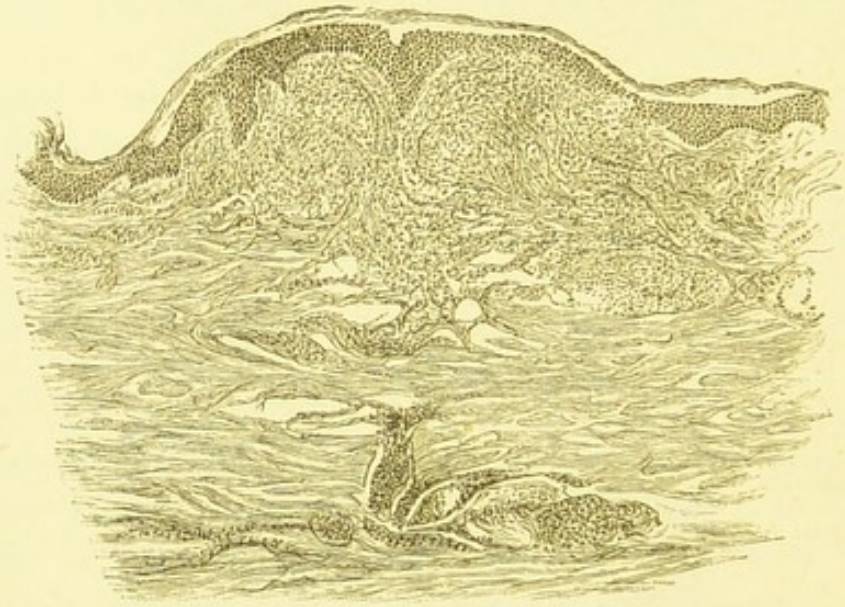

Fig. 30.—A small nodule of xanthoma tuberosum from the elbow, showing that the lesion is situated almost entirely in the papillary layer, pushing up the rete into a nodule. Almost the whole morbid area is made up of epithelioid cells. × 1-in. Ross, 2-in. oc.

to migraine, and had X. multiplex without jaundice then, though it developed subsequently. I found large epithelioid, multi-nucleated, oval, roundish, or polygonal, finely granular cells in a fine meshwork of connective tissue. These are the "xanthomic giant cells" of Touton. In very fine sections, each cell can be seen to lie in a mesh of connective tissue, the cells being either in irregular masses, or in many instances arranged in whorls or nests round a centre, this arrangement being due to their formation round a blood vessel. The individual cells vary much in size, have a defined outline, are finely granular, with from one to half-a-dozen or more nuclei (see fig. 29).

The process is chiefly in the middle and lower layers of the corium, through which yellowish-brown pigment is scattered, both free and in cells, the papillary layer being almost normal. There is also a certain amount of deposition of yellow pigment granules in the rete cells, a large proportion of which show vacuolation in a varying degree. This structure

agrees with that described by Touton. The origin of the cells has not been traced.

In the nodules, the process is more superficial; the bulk of the lesion, being situated in the papillary layer, pushes up the epidermis above the level of the surrounding surface. The connective tissue is increased, distributed in foci, and in greatest abundance round the hair follicles and sebaceous glands; the fatty masses are less conspicuous, but yellow oil globules infiltrate the meshes between the fibrous tissue. Chambard also found peri- and endarteritic and perineuritic thickening, but probably this is only present in the nodules in which the connective-tissue increase is considerable.

Diagnosis.—The presence on the eyelids of chamois-leather-coloured patches, imbedded in the corium, without imparting a notable change in texture to the touch, is very distinctive. Milium may present a slight resemblance, but when large enough to simulate xanthoma, the little tumours are hard and tense, whitish in colour, and more superficial, being imbedded in the epidermis, from which they can easily be shelled out by an incision over them; moreover, if pricked, some of their contents can be squeezed out, and this will settle the matter. Solitary lesions in children are to be distinguished by their colour and softness from pigmentless or white moles, and the latter are always congenital, which xanthoma very rarely is.

X. multiplex in the adult, nearly always has jaundice to point to the right conclusion. The presence of the lesions in the corium must be borne in mind, as a case is published in the *British Medical Journal*, by a good observer as a rule, as one of X. multiplex, where yellow spots were in the epidermis only, and came off after soaking in olive oil.

In two instances* to my knowledge, cases of urticaria pigmentosa of infancy and childhood have been reported as X. multiplex. The early onset of the lesions without being congenital is very unlikely; then the lesions are firm in the urticaria and soft in xanthoma. Itching is nearly always a prominent symptom in urticaria pigmentosa, and close observation would detect the occasional presence of ordinary wheals, while factitious urticaria can generally be demonstrated. Pollitzer† records a case

* Tchistiakoff's case, abs. in *Brit. Jour. Derm.*, vol. iii. (1891), p. 65, is evidently of this kind, and Dr. Barr's case in *Lancet*, May 12th, 1888. He was kind enough to show me the case at the Leeds meeting of the British Medical Association, and I recognised it as urticaria pigmentosa without doubt. Urticaria factitia also was present.

† *Brit. Jour. Derm.*, vol. iii. (1891), p. 398.

from Sangster's clinique in which *multiple dermoid cysts*, to the number of about one hundred and fifty, almost white or of a lemon-yellow colour, were indistinguishable from X. multiplex until microscopic examination was made, and refers to other cases of similar character and consequent error. Sangster's case was a woman æt. twenty-four, in whom the disease began when sixteen years old. The tumours were situated symmetrically behind the ears, on the neck, and chest. Two of her brothers also had it. All the members of the Dermatological Society considered it a xanthoma.

Prognosis.—The involution of the lesions observed in the cases of Fagge, Frank Smith, Legge, and Kaposi does not materially alter the prognosis, which is, that after progressing up to a variable extent the lesions become stationary, and remain so for the rest of life.

Treatment.—Excision is the only means of cure, since the disease lies in the corium. Dissection through the whole thickness of the skin is required, but great care is necessary not to go too deep on the eyelids, or ectropion will be produced. Especial care is required near the inner canthus of the lower lid, as very slight contraction will produce epiphora. By rubbing in soft soap, and making the patient wear indiarubber gloves, Kaposi removed from the hands some tubercles which he regarded as xanthomatous.

XANTHOMA DIABETICORUM.*

This is an extremely rare affection, but is becoming generally recognised, and there are now over a dozen cases on record. It differs in many respects from the usual type of xanthoma. The first cases were reported by Addison, Bristowe, Gendre, and Malcolm Morris, to the last of whom belongs the credit of recog-

* *Literature.*—Dr. Hughes' case, p. 160, of Syd. Soc. ed. of Addison's works, model 2,738, Guy's Museum. *Path. Trans.*, vol. xvii. (1886), p. 414, a case called by Bristowe "Keloid of a rare form." Malcolm Morris, *Path. Trans.*, vol. xxxiv. (1883), p. 278, with plate of histology, and at p. 284 is the report of the committee on the subject. A case in Hillairet's clinique, reported in Gendre's *Paris Thesis on Xanthelasma.* Chambard also has written a critique on the subject in *Ann. de Derm. et de Syph.*, vol. v. (1884), p. 348. Besnier, *Ann. de Derm. et de Syph.*, 1889. No. 5. *Brit. Jour. Derm.*, August 1892,—cases by Morris and myself, with histology.

nising it as a clinical entity. Since then Cavafy, Colcott Fox, Barlow, Besnier, Vidal, Hutchinson, Robinson of New York, Morris (a second case), and myself, have also had cases.

Symptoms.—The eruption consists of dull red, discrete, or confluent papules, quite firm to the touch, from a line to one-sixth of an inch in diameter, well defined at the margin, and roundish or obtusely conical. On the top of many of them, but not of all, is a yellow or yellowish-white head, which looks like a pustule, but is really solid, and some of the papules are dotted or streaked with red from dilated vessels. Itching, pricking, or tenderness is generally felt in the lesions, and in one case, shooting pains preceded the eruption. The most common positions are the buttocks, elbows, and knees, where they are generally confluent, though the papular origin is still discernible. They have also been seen on the extensor surfaces generally, on the mucous membrane of the mouth, on the face, scalp, and bend of the ankles, but not on the other flexures, nor on the eyelids, with one exception (Besnier). In most cases, the lesions are not very numerous, but in some, such as Robinson's, Hutchinson's, and Morris's second case, the eruption was very extensive, and the lesions are in such cases very distinctive, with the yellow apex on a red base of larger diameter. The eruption comes out rather suddenly at first, upon the extensor aspect of the limbs, especially the forearms, and then more gradually in other parts; after remaining stationary for some time—months, or even years—the papules begin to disappear, rather quickly when they once begin to go, leaving no trace behind them, or, while some disappear, others come out; or again, they may disappear entirely for a time, and then break out once more.

Etiology.—All except Gendre's case have been males; the ages have been from twenty-six to forty-eight; there has been diabetes mellitus in nearly all, in Bristowe's probably after the eruption, in Cavafy's before it—at least the patient had been told he had it and Bright's disease, but there was no sugar or albumen when he came under observation. Hutchinson's case, however, a stout man, never had diabetes or jaundice; his disease came on after "a bilious attack," to which he was subject; it was, however, of the same type as the other cases, and got quite well. Besnier also mentioned a case where there was no diabetes, but the patient was obese and his father was diabetic. Vidal's case also had no sugar,

but it was less conclusive. It is noteworthy that most cases have been stout and well-conditioned, and their aspect by no means suggested diabetes, so that the eruption becomes of some diagnostic value. In my own case, it was quite unsuspected until the eruption put me on the track.

Pathology.—The diseased process appears to be anatomically of the same nature as ordinary xanthoma, but with more inflammatory phenomena and less connective-tissue growth. Since Bristowe and Morris first made anatomical investigation, the histology has been more thoroughly gone into by Robinson,* Clarke † on Morris's second case, and myself. With regard to its pathogeny, in diabetes, as in jaundice, disorder of the hepatic

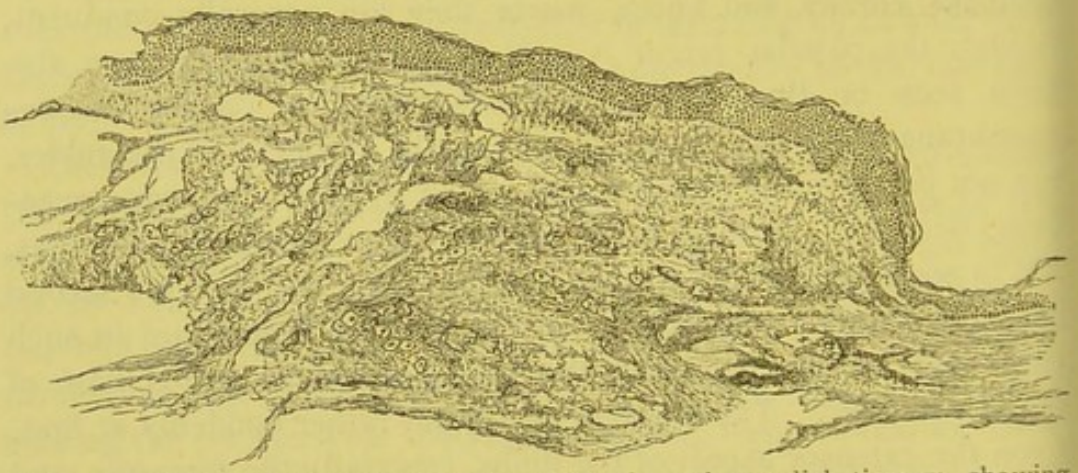

Fig. 31.—A general view of a small nodule of xanthoma diabeticorum, showing that the diseased area extends from the rete Malpighii through the whole depth of the corium, and that it consists of a round-cell infiltration with small groups of epithelioid cells scattered throughout it. Compare with fig. 30. × 1-in. Ross, 2-in. oc.

function exists, but the clinical facts show that derangement short of that necessary to produce either diabetes or jaundice may yet produce xanthoma. The whole of the process is in the corium, either superficial or in the centre, and it must be now admitted that "xanthoma cells" are found in this as in the ordinary form, and they seem to be in abundance in proportion to the size of the lesions. There are, however, few in a very early papule, and they are much less developed than ordinary xanthoma cells. In this form also, there is no actual connective-tissue growth, but Robinson found proliferation of connective cells in large papules. Round-

* *Brit. Jour. Derm.*, vol. iii. (1891), p. 106; and *Internat. Atlas*, plate xiii.

† *Path Trans.*, vol. for 1892, plate xliii.

cell infiltration and dilated vessels are here much more marked than in ordinary xanthoma. There is also a greater tendency of the lesion to be situated at the hair follicles. As might be anticipated from the clinical features, the predominance of active inflammatory changes is the most important and striking difference between the two forms.

Diagnosis.—The disease differs from ordinary xanthoma in the following particulars:—The sudden evolution and involution of the eruption, the latter always occurring sooner or later, while in xanthoma, involution is very exceptional and gradual. The lesions are firm and solid in X. diabeticorum, but in xanthoma, all except the largest tumours are soft at the commencement; in X. diabeticorum they are inflammatory, and, as Addison described

Fig. 32.—A small portion of fig. 31 more highly magnified to show the epithelioid cells, some of them multi-nucleated or giant cells. × ¼-in. Ross, 2-in. oc.

them, of "a lichenous character"; the yellow top is not present at first, nor in all papules. In xanthoma, visible signs of inflammation are quite absent, and the yellow tint is always present. There are never any patches or striæ, but always nodules or infiltrations; this is exceptional in X. multiplex. In the latter, also, it is very rare in the adult, not to find jaundice and for the lesions to be absent from the eyelids; moreover, the ordinary form has never been observed with diabetes mellitus except in Besnier's case, though it has with insipidus. Subjective symptoms are the rule in X. diabeticorum, the exception in X. multiplex. Finally, the lesions, in many instances, are in the neighbourhood of the hair follicles, which is not the case in the ordinary form, and the microscopic appearances are also different. Probably the comparative acuteness of the process accounts for all these dissimilarities.

Prognosis.—All the cases get well, the majority in a few months; one lasted over five years.

Treatment.—The measures requisite for diabetes exercise a favourable influence on the eruption. Several have appeared to benefit by the administration of arsenic, but the special diet, etc., for the diabetes may have been the real cause of the improvement; it is, however, a good tonic, so may be tried. If any local treatment is required to allay the irritation, liq. carbonis detergens ♏x to ʒj of calamine lotion would probably fulfil all indications; or olive oil might be rubbed in, with or without a few drops of oil of cade.

COLLOID DEGENERATION OF THE SKIN.*

This very rare affection was first described by Wagner as colloid-milium. Cases have since been reported by Besnier, Liveing, Feulard, and others.

Symptoms.—It occurs chiefly upon the upper two-thirds of the face, especially upon the cheeks and orbits, the bridge of the nose and forehead, but in a case of Liveing's the neck and upper arms were also involved. The lesions form slowly in groups, but are not confluent, and consist of pin's-head to millet-seed or split-pea-sized, glistening, translucent, lemon-yellow, flattish elevations imbedded in the skin, looking as if they contained fluid, but when pricked a small jelly-like mass and a drop of blood are all that can be squeezed out. Some have dilated vessels round them, and soon become depressed in the centre till the whole is gone, leaving a depression; or they may inflame and scab over and dry up, leaving a mark, but not a defined scar (Liveing). The disease affects both men and women from the age of sixteen and upwards, without any departure from health to account for it. Wagner thought that the change began in the sebaceous glands, but Balzer, who examined both Besnier's and Feulard's cases, considers that the degeneration commences as an infiltration in and round the fibres and cells of the upper part of the corium, especially

* *Literature.*—Wagner, "Das Colloid-Milium der Haut," *Archiv der Heilk.*, bd. vii. (1866), p. 463. Besnier, *Ann. de Derm. et de Syph.*, vol. x., Nos. 5 and 6 (1879); *ibid.*, vol. vi. (1885), p. 342, with histology by Balzer. Models 614 and 1,019 in St. Louis Museum. Liveing, three cases in *Brit. Med. Jour.*, March 27th, 1886.

in the neighbourhood of the sebaceous glands and their sacs. All epithelial structures escape, except the endothelium of the vessels, which may be attacked with the rest of the walls. There were no cysts or cavities lined with epithelium and filled with colloid substance, and no epithelial bands. Whether the affection is due to vascular alterations in the first place he could not determine, but thought it probable. The absence of cavities, etc., is emphasised, as recently L. Philippson * has endeavoured to establish the identity of colloid of the skin with the hydradenoma of Darier and Jacquet, founding his view on his microscopical observations on two cases from Unna's clinique. Besnier, however, who is familiar with both affections, disputes the clinical identity of the two affections, pointing out that in colloid the lesions have uniform characters, are limited to the face (this was not so in a case of Liveing's), are not congenital, but of comparatively recent development, and are not associated with other lesions. Balzer, who also examined the Darier-Jacquet case before they did, disputes the histological identity of colloid with hydradenoma. At the International Congress of Dermatologists of 1892, Perrin of Marseilles reported another case with histological examination. The patient, a woman of fifty-four, in bad circumstances, and much exposed to the weather, had an eruption like the cases of Besnier and Feulard on the upper part of the face and the ocular conjunctivæ, and, in addition, had similar lesions on the backs of the hands. The histological examination by Reboul showed the colloid change in the walls of the vessels and in the connective tissue, which was much increased, thus confirming the observations of Besnier and Balzer. It is obvious, therefore, that Philippson's view cannot be considered as proved. For the further discussion of hydradenoma, or more correctly hidradenoma, the reader is referred to lymphangioma tuberosum multiplex.

Diagnosis.—Putting aside for the present the disputed hidradenoma, the disease may be distinguished from xanthoma, which it most resembles, by the glistening and translucent appearance of the granules, and while on the one hand it is limited to the face, on the other it is not limited to the eyelids.

Treatment.—No internal or external application has any effect.

* *Brit. Jour. Derm.*, vol. iii. (1891), p. 35. He critically reviews all previous cases of colloid, with their references. Besnier's answer to this paper is a long and important note in Kaposi-Besnier, vol. ii., p. 370.

One of Liveing's cases got well spontaneously, but very slowly. Feulard treated his case with good result by erasion of the masses with a sharp spoon. I should try electrolysis.

LUPUS VULGARIS.

Deriv.—*Lupus*, a wolf.

Synonyms.—Lupus exedens; *Fr.*, Lupus vulgaire; Scrofulide tuberculeuse; Herpes esthiomenos; Dartre rongeante; Esthiomène; *Ger.*, Fressende Flechte; Lupus.

Definition.—A neoplastic cellular infiltration, producing papules, nodules, and patches, which either ulcerate or atrophy, leaving scars.

It is a common disease in this country, forming about 2 per cent. of all cases; as, however, it is an obstinate and very chronic affection, dermatological statistics doubtless exaggerate its frequency, as patients come back year after year.

There are no true varieties of this form of lupus, the numerous qualifying terms which will presently be explained depending upon minor differences.

Symptoms.—A typical case begins on the face, especially the cheek and nose, and nearly always in a child. In a cheek case, there appear at the commencement a few scattered or grouped pin's-point to pin's-head-sized spots, of a dull red colour, which, according to the depth of the little mass in the cutis, are depressed below, level with, or slightly raised above the normal skin, and pale, but do not disappear on pressure. These spots gradually develop to small nodules, which have a semi-translucent aspect under the stretched epidermis, and a brownish hue, so that the appearance of the nodule has been aptly compared by Hutchinson* to "apple jelly." After a variable time, more often years than months, the groups of nodules coalesce by individual extension into a dull red patch or patches, distinctly raised above the surface, soft and elastic to the touch in the centre, but firmer at the edge,

* Hutchinson used the term "Lupus" in a very wide sense. His special views are set forth in the Harveian lectures for 1887, published in *Brit. Med. Jour.*, vol. i., 1888; also Post-Graduate lectures, *ibid.*, vol. i., 1891.

and still translucent. By this time, there is generally more or less scaliness present, but not enough to obscure the ground colour of the infiltration, which goes on slowly extending at the edge, or more commonly by the formation of fresh nodules, which, as they enlarge, merge into the major patch.

There may be only one, or several patches, on one or both sides of the face, but the disease is seldom symmetrical, except when it begins on the nose, and spreads equally on both sides, and then it may assume the same shape as L. erythematosus. When the skin of the nose is affected, the whole thickness of the soft tissues may be involved as well; and as in all cases, when it attacks the mucous orifices, ulceration occurs, but, owing to the fungating granulations covered with brownish crusts, although swollen, the general outline of the nose is long preserved, and it is not until these granulations are removed that the amount of destruction can be fully realised. The disease may ultimately destroy all the anterior soft parts, the cartilages and even the bones dropping out. but the bones are never directly affected; or the infiltrated parts may undergo fatty degeneration and atrophy, leaving a thin eroded edge to the widely opened nostrils. The disease does not advance continuously, even in childhood, but has variable periods of improvement, quiescence, or activity, in the last spreading, or ulcerating, or forming new nodules in old scar tissue or at the borders of the infiltration.

In the adult, the quiescent periods may last for years, but it may break out anew whenever it is subjected to external irritating, or internal depressing influences. During the improvement stage, more or less of the central part of the infiltration undergoes disintegration and absorption, and atrophic scarring results, without any external wound at any time. The disease as a whole, however, very seldom gets well spontaneously, the edge nearly always retaining its vitality even when the interior is entirely cicatricial.

The disease is by no means limited to the face. The next most common positions are the limbs, especially below the elbows and knees, the buttocks, the trunk, the mucous membrane of the nose, eye, mouth, larynx, pharynx, vagina, and uterus; but it is nearly always associated with lupus elsewhere, especially on the face. While, however, no part is exempt, many positions, such as the hairy scalp, the upper eyelids and middle of the forehead, the neck

genitals, palms, and soles are scarcely ever attacked, except by extension from the neighbouring regions, but I have once seen the scrotum primarily and exclusively attacked with lupus nodules in a boy of six, and Matthews Duncan described what he called "lupus of the vulva," but the general opinion is, that his cases were examples of syphilitic ulceration.

Great variety of aspect is produced by enlargement of old patches and formation of new ones, and the presentation of the various stages simultaneously in different parts. Thus in one part, is the thin white parchment-like atrophic cicatrisation; in another, the destruction is deeper, and a seamed scar is the result; here, one part may be still ulcerating and covered with a dirty greenish crust, there, the infiltration is quiescent and covered with scales; here, new nodules are forming at the periphery, there, they are just appearing as small brown specks in the scar-tissue, where at least the process seemed to have finished.

After atrophy of a mass of lupus, the epidermis over the affected area becomes less dense, wrinkled, and more scaly, or even slightly crusted from exudation through a fissure; the exfoliated epidermis is constantly renewed, and ultimately the centre, rarely the whole, sinks down below the border, and when the last scales are thrown off, the skin is left thin and cicatricial, and ultimately white. When it ulcerates, the infiltration gradually softens, and breaks down into a pultaceous pus, which dries up into a greenish or dirty-looking crust. This, when removed, exposes a freely suppurating ulcer, which subsequently granulates freely and exuberantly.

Variations.—These depend chiefly upon the extent and position of the lesions, the constitution of the patient attacked, the amount of infiltration, its rate and mode of progress, its greater or less tendency to ulcerate or atrophy, and the complications which may arise. The number of foci may be very great; thus, in one of my cases, a boy of ten, there were forty-seven patches from a millet seed to a shilling, scattered over the whole body, viz., twelve on the face, one on the neck, seven on the trunk, and twenty-seven on the limbs. They were nearly symmetrical on the face, and showed very little tendency to spread in nearly three years. As usual, they came out all together; but in another case, which did not begin until he was twenty-nine, patches on the face and limbs came out at intervals spread over eight years. When along with

multiplicity there is a decided tendency to spread, and the disease has lasted many years, a very large part, or nearly the whole body surface may be involved. On the other hand, in rare instances, it may be scattered irregularly in small patches over one region; thus, in a boy, it followed on herpes of the ophthalmic division of the fifth, being limited to the site of the vesicles. Kaposi has met with a similar case in a man. Such cases, which are most frequent on the face, are well entitled to the term **L. disseminatus**, which is used for any cases with multiple patches, while **L. serpiginosus** is applied to cases where two or more circular patches have coalesced into a gyrate form, and enlarge at the margin as new nodules develop near it, and coalesce with each other and the parent patch. This occurs chiefly on the neck and extremities, and is sometimes a severe form from its rapid spreading. Such cases may be considered as examples of **acute lupus**. The process is attended with great hyperæmia and heat of the skin, and such cases, if they do not break down spontaneously, do so on very small provocation, especially if the treatment is of at all an irritating character, and they recur very rapidly after scraping.

L. hypertrophicus is applied to cases where solid lymphatic œdema is associated with the visible lupus infiltration, such as may be often seen in the upper lip, or where there is exuberant infiltration, much raised at the margin above the normal skin, but generally depressed in the centre, as is often seen on the buttock, but may occur elsewhere.

In adults, very rarely in children, the infiltration is very slightly or not at all nodular, but in plaques slightly raised above the surface, and more so at the border than the centre. The colour is red, with slightly brownish tint, but is not translucent, like ordinary lupus nodules. There may be only one patch or more, and in some cases, especially if the disease is bilateral, it is a little difficult to say whether it is a L. vulgaris or a L. erythematosus. Leloir* describes a **L. vulgaris erythematodes**, which closely resembles L. erythematosus; inoculation of guinea-pigs with some of the tissue produced tuberculosis, and tubercle bacilli were found in the tissue. In some parts, the lesions histologically resembled L. vulgaris, while in others they were clinically like L. erythematosus. Leloir says that it may take the butterfly shape on the nose and cheeks or be unilateral, is often covered

* *Jour. des Mal. Cutanées*, May number. vol. iii., 1891.

with telangiectic vessels, and may be slightly scaly. By stretching the skin nodules can sometimes be seen imbedded; it may invade both the scalp by the nucha, and the mucous membrane of the mouth.

On the limbs, secondary inflammatory accidents are more liable to occur, but not till after some years' duration of the disease. Among these may be mentioned subcutaneous nodes, which after a time are adherent to the skin on the one hand and the periosteum on the other; abscesses, periostitis, osteitis, caries, and necrosis occasionally occur, and the bones of the forearm and leg, and also those of the hands and toes, may become indurated and thickened, while more or less crippling of the joints may supervene from cicatricial atrophy of the skin and adhesion of tendons; such conditions would rarely occur except in those who are markedly strumous, and are not the direct effects of lupus. Erysipelas and lymphangitis are liable to occur at any time, and all these inflammatory complications may eventually, by the consequent obstruction to the lymphatic and blood flow, lead to elephantiasis in the legs, but very rarely in the arms. In Fischer's case, dermatolytic tumours formed on the thighs from similar causes. When erysipelas occurs on the face, chiefly as a sequel to the use of caustics, great improvement to the lupus often results, as I have several times witnessed. On the other hand, some of the cases of acute lupus before mentioned get attacks of recurrent lymphangitis, which, if not actually erysipelas, are indistinguishable from it, except that they seem to lead to extension of the disease instead of its involution.

Besides the complications described in lupus of the limbs in strumous subjects, enlargement and caseation and suppuration of the glands in the neighbourhood of the face may occur, and even chronic enlargement of the parotid. Leloir has shown that this lymphatic enlargement is often a real infection with tubercle bacilli, and not merely swelling, the result of irritation. The red lines often seen leading from the lupus patch after tuberculin injections are also to be regarded as evidence of lymphatic infection. Papillary growths, **L. papillomatosus**, from a crown to the size of the palm, may form on ulcerated parts. When the crusts are removed, the papillary, easily bleeding growths are exposed, such as are recorded by Rayer, Devergie, Hardy, Bardeleben, Waller, Kaposi, Walter Smith, McCall Anderson, Vidal, etc., and I myself have seen

several instances. There is, however, nothing special to lupus in this development of soft papillary growths, as they may occur in any chronically ulcerated surface. The extremities and buttocks are favourite positions for it, but an extreme development on the face is recorded by Morrow.*

L. verrucosus is another form of papillary growth. In this, which, as Unna pointed out, is clinically and anatomically identical with verruca necrogenica (see p. 313), there is not any antecedent growth, but the enlarged papillæ are covered with horny broken-up crusts, so that it has the appearance of a diffuse warty patch; it is very liable to inflame from time to time, and pus may then be squeezed out between the sulci of the horny crust. This form occurs chiefly on the hands and feet, and is much rarer than the more freely ulcerating cases with soft papillomatous development. It is usually single, and commences in early life, but I have seen it multiple; in a boy æt. three years, there were more than twenty patches on the limbs, especially on the hands and feet. I have also seen it in two members of one family, but not at the same time. In both these papillary forms, in my experience, there is an absence of true lupus nodules, and I think they are really forms of scrofuloderma. (See p. 501 and Fig. 38), McCall Anderson considers L. verrucosus as separate an affection as L. erythematosus.

Another more serious complication in lupus of long standing is epithelioma, which may develop either in the lupus or scar tissue. If on the face, it may penetrate to the mouth, and unless promptly and thoroughly removed, will lead to fatal cachexia, and the life of the patient can only be saved by early removal. In a man æt. twenty-nine, the lupus had existed for twenty years, and extended over a large part of the face, and over the right lower jaw an epitheliomatous growth the size of half a plum had developed three months before I saw him. The growth was freely removed by my colleague, Mr. Pollard, and has not recurred as yet, now nearly eighteen months after operation. This early development is not unusual. Bayha † noted four cases out of the forty-two he

* *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. vi. (1888), pp. 361 and 401, "Tuberculosis Papillomatosa Cutis, and the Relation of Papilloma to Syphilis, Lupus, etc.," with coloured plate.

† Much of Bayha's monograph is reproduced with additional cases, illustrations, and remarks in Hutchinson's *Archives of Surgery*, vol. ii., p. 138. See also Bidault's *Thèse de Lille*, 1886, and Karpinski's of Greifswald, 1891. My case will be published in my *Atlas*.

collected, and only one out of ten appeared to be cured after excision, the others recurring with fearful malignity, for lupus tissue seems to favour the rapid spread of the disease.

Among general complications may be mentioned, in addition to scrofula, chlorosis, emaciation, and phthisis, the last chiefly where the skin lesion is very extensive. Lespinnes,* from observation of four cases in Leloir's clinique, describes a complication which occurs sometimes in ulcerating lupus just before it breaks down. There is a sudden rise of temperature, immediately followed by prostration of a typhoid character. There are gastro-intestinal and bronchial catarrh, and even endocarditis or other serous inflammation. All these symptoms come on simultaneously, and resemble those produced by tuberculin injections. Leloir therefore inclines to the belief, that the symptoms are due to the absorption of similar products of bacillary action, and antiseptic local applications have been followed by rapid subsidence of the symptoms in most cases, but general tuberculosis has resulted or permanent organic disease of the heart been left. Fortunately this complication is very rare.

Mucous Membranes.—When it attacks the mucous membranes, it begins near external orifices, and generally by extension of the disease from the neighbouring skin, or it is at all events associated with skin lesions; but it may be primary, and I have once seen it beginning on the gum of a strumous child of two years old with no lupus elsewhere. Max Bender collected 380 cases of lupus from Doutrelepont's clinique, and found the mucous membranes involved in 173, or 45·5 per cent., but in only 6 were the mucous membranes alone affected. He found, however, that the disease had commenced in the mucous membranes in 31 per cent.; this is far more than is usually supposed. The mucous membrane of the nose was affected in 115 cases, of the lips in 43, of the palate in 31, the nasal duct in 24, the conjunctiva in 21, the larynx in 13, the tongue in 1, the rectum and vulva in 1. Its effects on the nose have been already described; in the mouth, extending inwards from the lips, granulating sores form on the inner side of the lips and on the gums, and generally project over the upper incisors; papillary growths are more frequent here than elsewhere, and separate the gums from the teeth; stomatitis is present more or less, and produces the superficial

* *Jour. des Mal. Cutanées*, vol. iii. (1891), p. 531.

greyish patches, similar to those so often seen in syphilitics. Punched-out ulcers on the hard palate are common, but caries of the bones never ensues. The soft palate and pharynx may be notably affected as in tertiary syphilis, but adhesion of the soft palate to the pharynx is less common than in syphilis, the lesions of which, in other respects, the cicatrices closely resemble. Spontaneous healing may occur sometimes, but only after many years. The tongue is very rarely involved; in Leloir's * case it presented a verrucose condition. In the larynx, it may affect the epiglottis extending from the buccal cavity, thence to the arytæno-epiglottidean folds, and to the other points of the larynx, and may affect the voice in various degrees; but no danger to life need be apprehended, nor any destruction of cartilages; in rare instances, it is primary in this part. It is occasionally primary on the conjunctiva, or it may have spread from the cheek on to the inside of the lower lid, and thence on to the eye, where it forms granulations and extends like a pannus over the cornea, and may completely cover it. In the ear, it may spread along the external meatus up to the membrana tympani, which may be destroyed, and after various anomalies of hearing, fungating tumours may develop on the meatus and occlude it; it is, however, very rare for the internal ear to be involved, which is reached by extension along the Eustachian tube. Cases have been reported of its existence in the uterus and vagina.

Etiology.—Lupus is much more common in females than males,—as two is to one is the accepted ratio in England, though, in my experience, four to one would be nearer the mark. It seldom begins before three years of age, though I have seen it twice in the second year of life. It is said to rarely begin after puberty, but it is by no means so rare as is usually stated, and one of the worst cases I have seen was a case of undoubted nodular lupus vulgaris, which began on the forehead of a lady when she was forty-six years old, and spread over the whole face, scalp, and part of the neck. There were also a few small foci on the limbs, but here it showed very little tendency to spread. Active interference only made it spread more rapidly. Her general health was good, and there was no evidence of phthisis or struma in herself or her family. Although more common among the poor, no class is exempt, but its frequency varies in different countries. It is

* *International Atlas*, plate iii.

more common on the Continent than in Great Britain, and almost rare in North America. While the patient is the subject of phthisis in a moderate number (eight in thirty-eight of Besnier's cases), I have been astonished, since I have inquired into it, at the large proportion of cases in which a history of phthisis in one or more members of the family is obtainable; Hutchinson has made a similar observation. This does not hold good for America; according to Nevins Hyde of Chicago, in eighteen cases where the family history was obtainable, in only one was there a distinct phthisical history. Much dispute has existed as to whether there is any connection between the so-called strumous diathesis and lupus, the Anglo-French schools affirming, and the Vienna school denying, this connection; no doubt a large proportion of cases show no such tendency, but the association is, in my experience, sufficiently frequent for the presumption of there being some relationship between the two conditions.

There seems to be little doubt that lupus may arise occasionally from direct inoculation.* In Lipp's case, the lupus was supposed to have arisen from the consumptive mother kissing the child's face on which there were rhagades. Jadassohn met with a case in which a butcher inoculated his finger with a tuberculous ulcer from an ox, and true lupus appeared higher up the arm; he relates another case which arose on the tattooed surface of a woman's arm—the ink was moistened with the operator's saliva. Dent records three cases in one family; they had all occupied the same bedroom, and two had slept together. I have had a case of a boy who had large symmetrical patches of lupus on the inner side of each knee, and auto-inoculation was probable. Clement Lucas relates the case of an attendant on a lady who had lupus, who was herself attacked with it on her nose; also a Jewish infant, where it appeared on the penis after ritual circumcision. Many instances of this are on record, the operator having been phthisical, but it is doubtful whether the result was a true nodular lupus in any case, and most of the above cases are individually inconclusive. Lucas's case of L. verrucosus, developing on the hand from having received a tooth wound on the fist, is on a somewhat different footing.

Experimental corroboration of these suggestive clinical facts has

* W. Dubreuilh and Aughe collected sixty cases of cutaneous inoculation of tuberculosis. Abs. *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 95.

been furnished by Leloir,* who, by taking large pieces of lupus tissue and placing them, with due precautions against error, in the peritoneal cavity of guinea-pigs, produced general tuberculosis.

Although lupus is often aggravated by exposure to cold, there is no reason to believe that it directly excites it.

Previous inflammation may favour the development and determine the position of the disease, and injuries are now and then its immediate antecedents. Thus in a woman of twenty-three lupus developed on the scar of a cut on the nose, beginning very soon after the wound healed. Cases following in the track of herpes zoster have already been mentioned. The general health may be good, bad, or indifferent.

Pathology.—The lesions of lupus are due to a neoplasm of the granuloma class, consisting of a small cell infiltration which begins first in the deep part of the corium, and from thence gradually invades all the other skin structures. The cause of the process is now generally regarded as the irritative presence of tubercle bacilli. Koch first demonstrated the presence of bacilli, indistinguishable from tubercle bacilli, in lupus tissue, and the view that lupus is a chronic tuberculosis of the skin was greedily taken up, though Kaposi, Schwimmer, and some others strongly oppose such a theory. The bacilli exist in such very small numbers, one in a cell perhaps, that they are often only to be found by careful examination of a large number of sections taken from the border of the growth. Cornil and Leloir, in a large number of sections taken from twelve cases, found only a single bacillus in a cell, and that from a case in which phthisis was present. It is strange that so much damage should arise from such a sparse distribution; but this may arise partly from the bacilli having perished in the older lupus tissue, though they are scanty even in the growing edge. In addition to the bacilli, all structures that are found in miliary tubercle are present in lupus, and these are particularly abundant in L. papillomatosus. Further confirmation that lupus is a tuberculosis of the skin is found in the violent, local, and general reaction to tuberculin injections. It is, however, certainly at most a local tuberculosis, without any tendency to generalise.

Anatomy.—This has been investigated by Virchow, Auspitz, Kaposi,

* See also Eve's "Experiments on the Rabbit," *Path. Trans.*, vol. xxxix (1888), p. 363.

Lang, Thin, Jarisch, and others, with results which do not altogether agree. That of Kaposi is one of the best accounts, and as it agrees with my own observations, it is that mainly followed here. Taking first a single recent general nodule, it is found imbedded in the deeper part of the corium, sharply defined from the rest of the cutis, and bounded by a dense fibrous tissue, the skin structures above the nodule remaining healthy.

The nodule has a framework consisting of a delicate fibrous reticulum with abundant vessels, the larger meshes of which are filled with round cells, with sharply defined, strongly staining nuclei, while the small meshes contain also some smaller cells, and many free nuclei. Giant cells are also

Fig. 33.—Lupus vulgaris from nates. 2-in. oc., $\frac{2}{3}$-in. obj. w. a.

a, thickened rete mucosum; *b*, *b*, *b*, round-cell infiltration separating fibres of corium; *c*, blood vessel; *d*, *d*, nodules.

present in varying numbers, but their importance has diminished, since they are now known not to be characteristic of tubercle, as they were thought to be when Friedländer, previous to Koch's discovery, advanced the theory, founded on their presence in lupus tissue, that it was a tuberculosis of the skin.

As the cells in the centre of the nodules increase in numbers, the vascular supply is interfered with, and fatty degeneration and disintegration ensue in that part, and, by extension of this necrobiosis, ultimately nearly the whole nodule is absorbed or ulcerates, though at the periphery the new products may, according to Lang and Kaposi, organise into connective tissue and cicatrise, differing in this respect from leprosy and syphilis.

When the foci are numerous, as they generally are, they extend peripherally in the course of the vessels, coalesce, and gradually involve the whole corium of the region affected. In the epidermis, which soon becomes affected, the rete cells undergo proliferation and fatty degeneration; there is downgrowth of the interpapillary processes on the one hand, and the encroachment of the lupus infiltration in some parts on the other, obliterating the boundary line between the palisade stratum of the rete and the papillary layer of the corium. More or less desquamation occurs, and by this means, or by suppuration, the lupus infiltration is laid bare and ulcerates. Similar changes occur in the epithelia of the sweat and sebaceous glands and hair follicles; hence ensue atrophy of the papilla, falling out of the hair, occlusion of the gland ducts, and consequent retention of secretion, so that milium-like bodies are imbedded here and there in the corium. According to Lang, Stilling, and Jarisch, the reticulum, the

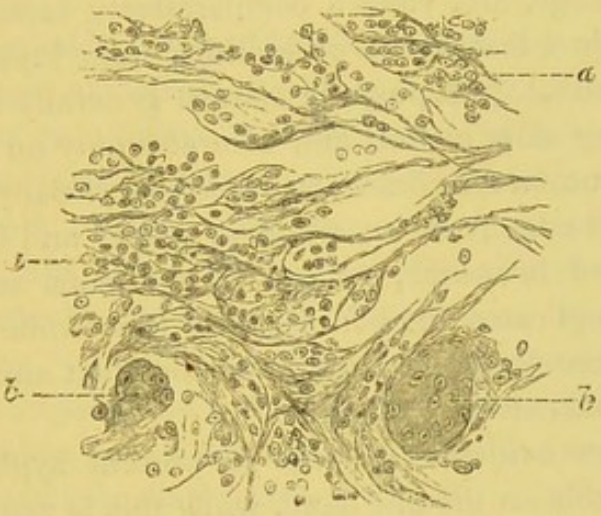

Fig. 34.—Lupus vulgaris from same section as fig. 33. $\frac{1}{8}$ obj. Powell, 2-in. oc.
a, fibro-cellular reticulum; *b*, *b*, multi-nucleated giant cells.

vessels, and part of the infiltration are formed by proliferation of the cells of the vessel walls and lymph channels and consequent outgrowths from them, while the rest of the infiltration consists of emigrant cells from the vessels. As occasional features may be mentioned, general hyperplasia of the whole of the tissues, resulting in elephantiasis, or the papillæ alone may enlarge enormously, and a verrucose condition be produced. Sometimes the epithelial proliferation is the striking feature, and that of the rete, follicle, and sweat glands may coalesce, and form a sort of network, permeating the lupus infiltration. It is in such cases that epithelioma may develop.

Diagnosis.—The diagnosis is easy when "apple jelly" nodules imbedded in the skin are present, or raised above it; when there are one or more inflammatory-looking infiltrations, more or less raised above the surface, moderately scaly, with a well-defined edge, and perhaps some of the aforesaid nodules near it; when

there is more or less scarring, either atrophic or ulcerative, the latter chiefly where the skin and mucous membrane join ; when, too, in such cases, the disease runs an extremely indolent course and occurs in a child or young person, or if in an adult, the disease dates from childhood.

Whenever there is scarring present, with an infiltrating eruption, the diagnosis in a young, or at all events not elderly person, practically lies between three diseases, viz., lupus, scrofuloderma, and gummatous infiltration from syphilis, leprosy being too rare in this country to need much discussion.

In a *gummatous syphilide* the disease almost always is acquired in adult life, ulcerates readily, spontaneously, and often deeply, with a sharp edge, and runs a comparatively rapid course, doing more damage in a few weeks or months, than lupus will produce in as many years. In lupus, the disease generally begins in early life, runs a very slow course, and ulcerates only on provocation or when near a mucous membrane, and then superficially, and generally with a rounded edge ; the secretion is scanty and inoffensive, the crusts thin and brownish, except in strumous subjects. Then lupus never implicates the bones of the face, while syphilis often does, and the crusts in the latter are abundant and greenish, and the secretion offensive.

Corroborative evidence of past or present syphilis is nearly always obtainable on the one hand, while this is negative in lupus. If, after taking everything into consideration, doubt still remains, a tentative treatment with iodide of potassium and mercury for a week or two will decide the matter, marked improvement resulting in syphilis, while lupus is unaffected.

In *scrofuloderma*, caseous glands, or the scars left by them, are present, and the disease consists in a chronic dermatitis spreading from the softened glands ; there is more or less ulceration, probably sinuses, and soft red undermined skin, but no translucent brownish tubercles in or near the infiltration, and there is probably other evidence of the so-called strumous diathesis. With such symptoms present, the diagnosis is easy ; but sometimes lupus also starts from caseous glands, or at all events may develop in a notably strumous patient, and the two conditions merge into one another ; the diagnosis may therefore be difficult, but is fortunately not then of practical importance, and does not modify the treatment.

In *leprosy*, it is only when the disease is in an early stage, and of the tuberculated or mixed kind, that any difficulty could arise. If there were any anæsthesia present, this, with the history of the patients having been in a leprous district, would at once decide the diagnosis; later on, the other characteristic symptoms of leprosy would be present.

Lupus sometimes closely resembles *squamous eczema*. The length of time that the lupus has existed in a very limited area, its sharply defined and raised border, the greater amount of infiltration of the skin, its having been dry throughout its course, while it has not varied in intensity to a notable extent, and its tendency to scar formation, are all points in which it contrasts with an eczema patch.

In people past middle age, *epithelioma* might be confounded with lupus. The age at which the disease began, the position of epithelioma, its painfulness, its limitation to a small area, the induration round the infiltration or ulcer, are all points of distinction. The depth of the ulcer also is usually greater, the edge raised, everted, and hard, the surface uneven, and the more rapid progress and the involvement of neighbouring glands mark the malignant form of disease. The occasional supervention of epithelioma on lupus of long standing has already been mentioned. For the distinction from *rodent ulcer*, see that disease.

L. erythematosus is distinguished from L. vulgaris by the more superficial and less raised character of the eruption, the absence of ulceration, and the absence of nodules or papules in or near the patch; moreover, it nearly always begins much later than vulgaris, and is often symmetrical. It generally progresses more rapidly than L. vulgaris, and the sebaceous glands are often conspicuously involved in erythematous lupus and not in L. vulgaris. As has been stated already, however, the differences in some cases are by no means striking, and careful consideration of every point is required.

In cases of doubt, where the diagnosis is important, tuberculin injections may be employed; whatever its shortcomings as a curative treatment, there is no doubt that it may sometimes prove a valuable aid in diagnosis. Two milligrammes (·002) may be first tried, and then ·005 or even ·01 employed, and the smaller the dose which produced local and general reaction, the more strongly would it speak for L. vulgaris; a full dose like ·01

may produce slight local reaction in a L. erythematosus, but not in syphilis, rodent ulcer, or epithelioma. It is not of any discriminating service in lepra or scrofuloderma; from the latter, however, the diagnosis is of more academic than practical importance, and lepra may react to it so violently that if this disease is suspected it should not be employed.

Prognosis.—This depends on the age of the patient, the extent and duration of the disease, especially with regard to multiple foci, and the amount and character of the treatment. It is always a chronic, obstinate disease, tending to recur again and again, after apparent complete removal, but, when of limited area, complete cure may be effected by perseverance; the older the patient, the better is the chance of permanent removal, durable cures in childhood being of very rare occurrence.

Treatment.—Whilst no internal treatment has any power in removing a lupus patch, something may be done to retard the progress of the disease, and favour involution rather than ulceration, and also to delay the recurrence after the removal of the infiltration by local means. All measures, therefore, that tend to improve the general health should be adopted; good hygiene, in every sense of the word, as far as it can be secured, should hold a high place, while the patient should be carefully guarded against external irritants, such as cold winds, sudden alterations of temperature, and the like. Coming of a phthisical stock, as so many do in this country, and the not infrequent association with evident struma, cod-liver oil in full doses steadily persevered in, but with occasional intermissions, holds the first place. Iodine, either with the oil in grain doses, or the potassium salt, or the syrup of the iodide of iron, is also of value, and Liveing is a strong believer in three to five-minim doses of tincture of iodine three times a day, generally combining it with two minims of Fowler's solution. I have never been able to convince myself of its being of real value, though I still often give it.

Improvement in assimilation is the great aim, and therefore attention must be paid to the condition of the alimentary canal, and a nutritious dietary, of easy digestion, drawn up when the digestive powers are weak. In proportion as the general health is good, and the patient often seems to be quite robust, is internal treatment of minor importance. Ordinary internal medication being admittedly so unsatisfactory, men's hopes of a specific being

at last discovered, were raised to the highest pitch, when the marvellous selective effect on lupus tissue of Koch's tuberculin, administered hypodermically, was first demonstrated. Disappointment has been proportionately great, now that it is shown that the good effect is for the most part only temporary, and a few unfortunate results both as regards the lupus—in some instances, the disease spreading whilst under treatment—and its dangerous effects on the patient have induced many observers to throw it aside altogether. I am of opinion, however, from considerable experience in its use, that there is still a place for it in lupus therapeutics, although unfortunately a comparatively small and subsidiary one. Moreover, the ill effects can be wholly avoided, or reduced to insignificance, by preliminary care and improvement in its administration.

Whilst it possesses a remarkable selective action on lupus tissue, the nodular form of which flattens down more or less completely, and the ulcers so frequent in lupus of strumous subjects heal up with diminution of swelling often very rapidly, these results have proved to be only temporary, the disease recurring, though not always so badly as before. The improvement is greatest in the ulcerative form in the young, and least in the purely nodular form in adults, in which sometimes the effect is only trifling. Since, however, as much, and even more, improvement may be produced more quickly and more durably by previously known methods, and with, on the whole, less suffering to the patient, for such results, tuberculin must be admitted to be practically a failure. One thing, however, it will do that neither medical nor surgical measures have been able to effect, viz., to remove the fibroid thickening* which is so often present when lupus affects the lip or other place where there is lax tissue. The hypertrophic scar tissue of lupus (the lupus fibroma of Unna) may also be flattened down by it, sometimes revealing as it does so, lupus nodules hitherto concealed. Another use for it is, that after as much lupus tissue as possible has been removed by erasion and the subsequent application of carbolic acid, or other similar application, injections of tuberculin, in the back first, and later locally, appear

* A marked example of this was that of a patient of mine treated by my friend Dr. Heron in Victoria Park Hospital for consumption, when tuberculin first arrived in England. See photographic plate of lupus in my *Atlas*.

to remove some of the lupus tissue which could not be reached from without, and thus assists in securing a longer freedom from recurrence, and a larger amount of permanent cure.

The details of the method of its administration are given in the Appendix of Formulæ (Lupus Therapeutics).

Hans von Hebra has recently recommended thiosinamin injections for L. vulgaris. Two or three-tenths of a cubic centimetre of a 15 per cent. alcoholic solution should be injected into the skin of the back, in the same way as tuberculin, two or three times a week. The quantity may be gradually increased to a cubic centimetre. No bad constitutional symptoms were ever observed; the patients could be treated without interfering with their occupations. At the Vienna International Congress of Dermatologists of 1892, I saw several severe cases which had greatly improved after from twenty to thirty injections. No absolute cures were produced, but there was extensive healing, the chief effect, apparently, being the removal of the secondary inflammatory products, so that contracted limbs could be extended, impervious nostrils become pervious, and the infiltration of so-called hypertrophic lupus was removed. The treatment is certainly worthy of further trial.

Local Treatment.—It follows from what has been said that local measures are always necessitated, and, as in all obstinate diseases, the number recommended is legion. I propose to mention only those that I have reason to speak well of, or, at all events, to indicate the limitations of, and indications for, their use. They may all be divided into two classes:—(1) those which protect the part or diminish hyperæmia, and so favour involution; (2) those which destroy the diseased tissue. Those of the first class have only a limited sphere of usefulness, but they are often serviceable in paving the way to more radical measures, which it is seldom judicious to urge upon the patient without some preliminary treatment. Calamine lotion, frequently and perseveringly applied, is one that is useful at first, for lesions on the face which are not actually ulcerating; it lessens hyperæmia, partially conceals the eruption, and some degree of involution is often effected. Mercurial plaster, or the emplastrum Vigo, or Vidal's emplastrum rubrum (Plasters, F. 6), may often be applied at night, and are very valuable adjuncts. Bismuth and other astringent lotions, such as have been recommended in eczema, act in a similar direction.

The inunction of simple ointments or soft soap, caoutchouc coverings, and most of the plasters recommended, soften and facilitate the removal of the scales or crusts, and pave the way for more energetic treatment. Brooke's ointment (Lupus Therapeutics, F. 1) acts in a similar direction, and produces a certain amount of involution if firmly rubbed in night and morning for some minutes. If the skin becomes broken, a milder antiseptic ointment, such as boric acid, should be applied till it is sound again. A formula I have found useful is iodoform gr. 10, creolin ℥iij, lanolin ʒv, parolein or pure heavy paraffin oil ʒiij. The disagreeable odour of iodoform is favourably modified by the creolin. It should be rubbed in firmly, but not briskly. Europhen gr. 10, instead of the iodoform and creolin, is a good substitute, and nearly free from smell.

The second class is the more important, and embraces *chemical* and *mechanical* measures. The chemical are caustics of various kinds, antiseptics, and oxidising agents.

The principal caustics employed are—

Arsenical Paste (Hebra), (Caustics, F. 1).—This is spread upon linen, and applied evenly in strips to the affected part; a pad of lint is placed over it, bound on firmly, and allowed to remain for twenty-four hours; the part is then cleansed and the paste reapplied for another day, and again renewed unless there is already ulceration, when one or two applications may be sufficient. To avoid any danger of arsenical absorption only a limited area should be treated, say three or four square inches at the most, though it is used more freely in Vienna. The great advantage of this treatment is, that it picks out and utterly destroys the diseased tissue, whilst leaving the healthy tissue untouched, and the islands of healthy tissue thus left much facilitate the healing and diminish the scar. The disadvantages are, that the pain is very severe after the second day, and there is great swelling and œdema in the neighbourhood. These, however, soon subside after the removal of the paste. Other caustics in general use, are the *Vienna paste* of caustic potash and unslaked lime in equal parts, rubbed up into a paste with a little spirit just before use. The skin round being protected by strips of plaster, the paste is placed on the diseased part, and should be washed off in ten minutes with vinegar and water; it is only suited to small patches on the trunk and limbs, as the scarring is very deep. Far preferable, I think, is the

chloride of zinc paste; a good formula is that used at the Middlesex Hospital (Caustics, F. 11). It should be spread on lint the size of the patch to be attacked, and bound on for twenty-four hours. It is painful for about six hours; the area destroyed is strictly limited to the part to which it is applied, but it does not discriminate like arsenic.

Another very effectual plan is forcibly ploughing up the diseased tissue with the *solid stick of nitrate of silver*, which penetrates only into the diseased part, the healthy skin not yielding to it. The results of this treatment are excellent, but there is often severe pain for several hours after the operation, which should be done under an anæsthetic. Kaposi still uses this method in preference to all others, but I think that equal and even superior results may be obtained without such severe after-suffering. The other powerful caustics have been largely superseded by milder and less deeply destructive methods, though arsenic is still much used in Vienna for cases with numerous nodules imbedded in a cicatricial surface.

Lactic Acid has been used in the form of the pure acid of a syrupy consistence, applied on lint for twenty minutes to ulcerating lupus, the parts round being protected by lanolin, as lactic acid is not selective in its action. After removal, the part is wiped with absorbent wool, and an iodoform or a boric acid ointment applied. The acid may be renewed every day or two. The application is said not to give much pain, but in some cases, the pain is severe. It is most useful for lupus of mucous membranes, and cocaine, painted on before applying the acid, prevents pain. It is not of much use where the skin is sound, unless scarification or scraping precedes its application. It should not be kept on too long, or deep scarring may ensue.

Salicylic Acid, as an ointment in the proportion of ʒj to ℥j, was first suggested to me by a Mr. Marshall,* and I used it with success, and subsequently Unna brought it into notice, and introduced plasters (see Formulæ), made by Beiersdorf of Hamburg, with 30 and 50 grammes of the acid to the metre, and for lupus 40 grammes of creasote were subsequently added to diminish the pain. In these plasters, the active ingredients are formed into a magma with oleate of alumina, and spread on a gutta-percha sheet backed with muslin. Its acts far more efficiently thus made,

* *Brit. Med. Jour.*, June 25th, 1884.

than when incorporated with the plaster basis in the ordinary way, such plasters being almost useless. It is most efficacious when applied to raw surfaces, when the disease is not very deep-seated, bound firmly on, and renewed once, or if there is much exudation twice, daily. A good, smooth cicatrix usually results, but the treatment is tedious. An even better mode of using it is that of Treves, to add as much salicylic acid to glycerine as will make a paste, applied on lint. The pain does not last more than a few minutes, but there is no objection to adding creasote or carbolic acid (ʒss to the ℥j), or, still better, painting on a 20 per cent. solution of cocaine before applying it.

Pyrogallic Acid has gained favour of late years in the treatment of lupus. Besnier brushes on a saturated solution of the acid in æther, and then covers it with traumaticin, repeating the treatment until all lupus points have disappeared. It acts by exciting suppurative dermatitis. Schwimmer also advocates its use after cleansing the part with vaseline, applying a 10 per cent. ointment two or three times daily for a week, and then putting empl. hydrargyri on the raw surface, repeating the process until no more nodules appear. It is not very painful as a rule, and is said, like arsenic, to pick out the diseased tissue. I have used it with moderate success.* Brocq finds the combination of pyrogallic and salicylic acids in 10 per cent. collodion the most efficacious method of using these substances.

White of Harvard acts on the bacillary theory, and applies a solution of bichloride of mercury, one or two grains to the ounce, and says a cure is effected in a few months; an ointment of the same strength may be used continuously. Doutrelepont endorses White's opinion, using a solution of 1 in 1,000 under gutta-percha tissue, and both Auspitz and he have injected a 1 per cent. solution into the interstitial tissue in hypertrophic lupus of the lip, etc.

Permanganate of Potash is another drug applicable in certain cases, on the method of Schultz of Kreuznach. He paints daily, or every other day, a 10 per cent. solution of permanganate

* It should not, however, be used for a very large surface at a time, as dangerous symptoms from absorption have arisen when it has been employed over a large area for psoriasis, and occasionally it acts with unexpected energy, and gangrene even has followed too prolonged an application.

of potash, until a thin, black crust is formed; the nodules are softened, and can be wiped away with cotton wool. The treatment requires six or eight weeks. It is adapted to superficial and recent cases.

Harrison of Bristol has recently found remarkable improvement produced by saturating the diseased area with a solution of hypo-sulphite of soda, forty grains to the ounce of distilled water, and then applying a lotion of five drops of strong hydrochloric acid to the ounce of water, the idea being to produce a nascent sulphurous acid in the tissues, and thus obtain its full effect. Improvement is said to be quickly observed, and sound healing produced. Time and further trial are required to ascertain whether more permanent results are obtained by this treatment than by other means, but it appears promising both in theory and practice.

Mechanical.—The treatment by chemical means, however, has been largely superseded by *mechanical* methods, and caustics are restricted almost entirely to those cases in which the patient objects

Fig. 35.—Curette for scraping lupus.

to operation, or where, on other grounds, operative measures cannot be carried out. These operative procedures are *erasion*, *linear scarification*, *multiple puncture*, and *cauterisation*, either with Paquelin's or the galvanic cautery. Foremost of these I should place *erasion* or scraping with a sharp spoon, as suggested first by Volkmann. The soft lupus tissue is scraped away with a shallow steel spoon or a curette, and a very little practice enables the operator to judge how far to go, for the healthy tissues resist the instrument, unless undue force is applied. Inasmuch as small portions of lupus tissue are liable to get pocketed in the interstices of the healthy tissue, Volkman employed multiple puncture with a sharp-pointed knife all over the scraped surface. A better plan, in my opinion, where there is much cicatricial tissue, is, after scraping, to swab the raw surface freely with strong carbolic acid, or if the disease is on the limbs, to apply strong sulphuric acid with a piece of wood or a bundle of match ends, and in a few seconds neutralise with bicarbonate of soda. Boric lint or salalembroth wool is then bandaged firmly on to stay the bleeding, replaced in a few hours with wet boric lint covered with oiled silk, and in a

day or two the wound may be dressed with boric ointment, which is more easily removed than wet lint. It is a good plan, for the first few days, to spray on a solution of iodoform in æther before putting on the fresh dressing, but it gives a few minutes' pain. The wound heals rapidly with a smooth, thin cicatrix, unless the scraping has been too vigorous, and there is but little pain after the operation, which, when practicable, should be done under an anæsthetic, nitrous oxide gas being sufficient for limited areas. Altogether, this operation is one of the greatest advances in the treatment of lupus, though no one but Volkmann, with the inventor's enthusiasm, claims to get a perfect cure by it. My results have greatly improved since I have supplemented the scraping with the free application of liquid antiseptics at the close of the operation, and have been still better where tuberculin has been injected as an after-treatment until the wound heals; in short, a *mixed method* is the best. After a time some fresh nodules will appear; these may be dug out again with a small spoon, or, if not large, bored

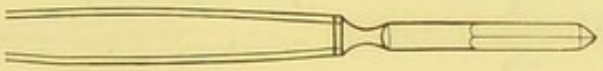

Fig. 36.—Vidal's knife.

out with a pointed piece of wood dipped in fuming acid nitrate of mercury, or with the nitrate of silver or corrosive sublimate crayon. Malcolm Morris has devised a special screw instrument for breaking up these nodules, and Fox of New York recommends the dentist's burr and hook, but in my experience the other methods are as efficacious as they are simple, and have the advantage of simultaneously applying bactericides. Unna claims that nodules in scar tissue which cannot be seen in the ordinary way may be brought into view by painting the skin with carbolic acid, which makes it transparent. Oil of cloves or camphor chloral is added to mitigate the pain of the application. Tuberculin injections reveal the nodules even more effectually.

Linear Scarification aims at getting rid of the diseased tissue by mincing it up and occluding the nutrient vessels; it is done either by making parallel lines about one-sixteenth to one-eighth of an inch deep, and as close together as possible, with a sharp knife or B. Squire's or Pick's multiple scarifier, or by Vidal's single-bladed knife with triangular point: other lines are made at right angles to the first, and perhaps again obliquely. It is claimed by Squire,

Morris, and others, especially by Vidal and Brocq in France, that better results and thinner, more uniform scars are obtained by this method than by scraping, but I prefer scraping, except when the lupus is very superficial, or in the rare acute lupus, as in scarification the operation has to be repeated a great many times, and the recurrent nodules are more numerous, and after several scarifications very difficulty to remove completely. It has the advantage that it can be performed with local anæsthesia only, and is less likely to be followed by keloid, which occasionally follows scraping. This very keloid or hypertrophic scar may, however, be much improved by linear incisions and the subsequent application of mercurial plaster or the emplastrum Vigo, and in France this or Vidal's plaster is always applied in the interval

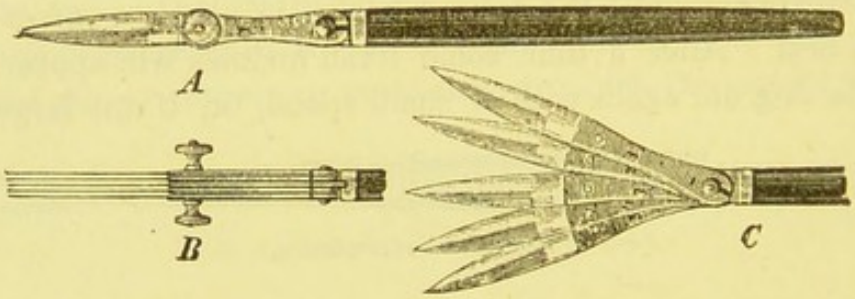

Fig. 37.—Pick's lupus scarifier and multiple puncture instrument. *A*, *B*, closed for use; *C*, open for cleansing.

between the scarifications of the lupus. Admitting that the scar is somewhat better than that produced by scraping, the advantages on the score of time, less suffering, less loss of blood, and less danger of auto-inoculation, which Besnier considers a real and serious danger in blood-shedding operations, are all on the side of erasion. In this operation, the danger of auto-inoculation, if antiseptics are applied as directed above, is, in my opinion, theoretical. To take every precaution in operations on the face, I guard the eyes from blood getting into them by covering them with salalembroth wool. Leloir, who has had every opportunity of seeing scarification at its best, prefers erasion on the mixed plan, reserving scarification for acute lupus and for improving the scar left by other treatment.

Multiple Puncture finds its chief advocate in Veiel of Cannstadt, who has devised a special instrument to facilitate its performance, which may also be used to supplement scraping (Pick has slightly

improved on this instrument: fig. 36). It is inferior as a primary treatment to both scraping and scarification.

The *Galvanic* or *Paquelin's Cautery* is used either to totally destroy the new growth, or as a more thorough linear scarification method, and has some strong advocates, notably Besnier, but it has the disadvantage of burning both sound and unsound skin with equal facility, and the sense of touch in recognising the difference is unavailable, and a valuable means of thus judging how much to do is lost. Besnier, however, does not admit this. It is in my practice, limited to recurrent nodules, and to lupus of the mucous membranes, where it is valuable for preventing bleeding.

Lustgarten and Gärtner advocate *Electrolysis*, employing bright plates for the negative electrode, with twenty-four Leclanché cells. Jackson of New York is also in favour of this, but employs a coarse needle instead of a plate for the negative electrode. I have used this last method, independently, for cases where there were only a few recurrent nodules on the face, and for this purpose can speak in favour of the plan.

Excision occupies a very small place, and must be restricted to cases of early lupus of small dimensions, situated either on the limbs where a comparatively large scar would not matter, or where the skin is lax enough to allow of its being brought together, so as to obtain a linear scar by primary union. It has no advantage over less severe measures, unless the incision includes sufficient healthy skin round it to warrant the hope that a radical cure may be effected. I have had good results in suitable cases.

Although these are not a tithe of the measures that have been recommended from time to time for this obstinate affection, they are those which in my opinion are the most efficacious, and while no one treatment is the best for all cases, the methods I use most frequently are erasion on the mixed method, the acid nitrate of mercury applied with a piece of wood, and salicylic acid ointment, paste, or plaster.

Thus in an ordinary case of lupus, if I had a free hand, I should operate at once if the patient were in good health, as he often is. But if his circumstances did not permit it, or it was not deemed judicious to suggest any operative measures before his mind was prepared for it, one of the palliative measures described,

or a salicylic acid preparation, might be used for a time. The operation I should generally do would be erasion, followed immediately by the free application of carbolic acid to the wound and injections of tuberculin until it was healed. If the mucous membrane of the mouth is involved, I should attack it with the galvano-cautery. If there were any thickening of the scar after healing, repeated scarification followed by the application of mercurial plaster would improve it, or tuberculin injections if they have not been used before, so that the patient is tolerant of it. Recurrent nodules would be bored out with a match end dipped in the fuming acid nitrate of mercury, or with nitrate of silver crayon. If the skin over them were hard, Vidal's knife rotated or Morris's screw might precede the caustic, or a hard-wood German toothpick is a very good substitute, and this could be dipped in the acid. An ulcerating lupus, spreading rapidly, is best treated by deeply scarifying the border three or four times, and rubbing in iodoform directly after each scarification.

In a small number of cases, more or less acutely inflammatory, all strong measures seem rather to aggravate than cure, and milder applications, at all events for some time, answer best. Compresses should be bound on, wet with one of the following lotions: lead lotion ♏x to ♏xxx to ℥j, perchloride of mercury 1 in 1,000, boric acid in saturated solution, chlorate of potash 5 or 10 grains to the ℥j, chloral gr. 5 to the ℥j, or weak Condy's fluid (red). Calamine lotion is another good application applied three or four times a day and allowed to dry. When the acutely inflammatory symptoms have subsided by these means, more radical treatment may be proceeded with.

LUPUS ERYTHEMATOSUS.

Synonyms.—Seborrhœa congestiva (Hebra); Lupus erythematodes; Lupus superficialis (Parkes and Thompson); Lupus sebaceus; *Fr.*, Scrofulide érythémateuse; Érythème centrifuge (Biett); *Ger.*, Lupus erythematosus.

Definition.—A cellular infiltration, producing various-sized red scaly patches, clinically resembling an inflammation, but with a tendency to atrophic scarring.

L. erythematosus is much less common than L. vulgaris, occurring only once in about two hundred cases (6·3 per 1,000). It was described by Biett, Hebra, Parkes, Thompson, Cazenave, etc., under various designations, but that of Cazenave has displaced all others.

Clinically it may be divided into four varieties :—

1. Circumscribed or discoid ;
2. Diffuse or disseminated ;
3. Telangiectic ;
4. Nodular.

Symptoms.—The **circumscribed** is the most common form, attacking chiefly the head and face, especially the nose, cheeks, and ears, often symmetrically. Whilst no part of the body can claim absolute exemption, the next most frequent seats, in addition to the bridge of the nose and cheeks, are the tip and alæ of the nose, the orbits, the lips in all parts, the scalp, leading there to permanent loss of hair, and the back of the fingers and toes. In the early stage, it usually appears as isolated or grouped, small red spots, about one-eighth of an inch in diameter, with a yellowish spot and a small, closely adherent scale, evidently sebaceous, in the centre, and when this scale is removed, it is found to dip deeply into the dilated sebaceous gland-duct, in which it forms a plug. This is the stage which Hebra first described as seborrhœa congestiva, or primary eruptive spots ; these spots slowly extend peripherally, and ultimately coalesce into one or more reddish patches of varying size, still scaly, and with conspicuous yellow sebaceous plugs. These patches often present a dirty yellowish-white appearance, rough to the touch from the horny plugs in the follicles, while the border of the patch is red and raised above the central portion. This condition is most marked on the nose, but is also seen on the malar eminences and in the scalp ; it is the L. sebaceus of Hutchinson. When it is more uniformly inflammatory, the patch, which is only slightly raised above the surface, but has a well-defined border, continues to enlarge, undergoes involution in the centre, which sinks down, and ultimately may clear away completely. It then leaves only a thin white cicatricial area, with a red raised border about one-eighth of an inch thick, which is often still studded with comedones ; or, if the involution be incomplete, it remains slightly reddened, with closely adherent scales. Not infrequently, the nose and cheek patches enlarge until they

meet and form one large patch, resembling a butterfly in outline, but the disease is usually of many months' or years' duration before it has attained to this size.

Another mode of commencement is that of well-defined, very bright, uniformly red spots, which become raised patches, hot to the touch, and slightly desquamating. This erythematous aspect is very persistent as a rule, but may, either spontaneously or by treatment, clear away without leaving a trace behind; but more frequently there is some atrophic scarring. I have also seen it as persistent red plaques, like an erythema exudativum, the epidermis being unaffected. This last form is very rare, and the other erythematous variety is more often seen in the disseminated than in the circumscribed form. In these modes of commencement, the follicles are not primarily affected, as in the sebaceous form. In the scalp, it also begins in the follicles. In a boy of ten, I once saw a small sickle-shaped patch, which consisted of an aggregation of horny plugs seated at the hair follicles, and when these were removed, a cribriform aspect was produced. There was only a little reddening round some of the follicles, and there was no hair on the part. Whilst, as a rule, there is only slight scaliness most marked at the border, in others there is a distinct horny, closely adherent crust covering the whole surface, but with a bright red border beyond. When the back of the hands is affected, it often takes this crusted form, with red borders. In a case of Hallopeau,* a man of sixty-one, a warty development occurred, something like that of L. verrucosus.

When the patches coalesce, irregular or gyrate patterns are produced, but they do not enlarge indefinitely, but after a variable time become stationary or involute still further, even the borders becoming less red and prominent. Ultimately, in a few fortunate cases, nothing may be left except the thin white scars; yet even then recurrence may take place in the scar, and by this means, and by the formation of fresh patches, keep up the disease for an indefinite time. Spontaneous ulceration is exceptional, except in the lobes of the ears and on the scalp. As a rule, in this class of case, there is no disturbance in the general health, but complications may occur, such as erysipelas, and, indeed, sometimes the lupus appears to date from an attack of erysipelas. On the other hand, erysipelas may produce a very rapid involution of the disease.

* *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 206.

In the case of a young woman with crusted L. erythematosus over almost all the face, an attack of erysipelas was followed by the complete disappearance of the disease over almost all the affected area, except a small patch on each cheek, leaving a white thin cicatrix. Unfortunately, the patches that were left slowly spread, until a great part was again involved, but it was never over so large an area, nor was it so crusted as before.

In the diffuse form, **L. disseminatus** (Hebra), the patches are much more numerous, but each commences in much the same way, except that the erythematous mode of onset is more frequent than the seborrhœic. The patches nearly always begin on the face, and, in addition to the positions already enumerated, may form in any and every part of the body, so that the eruption by coalescence may, in rare instances, become well-nigh universal. As a rule, it involves large surfaces, gradually invading one place after another, though by no means continuously.

In a case under Hallopeau,* the eruption, at first only on the face, progressively invaded the trunk and limbs. The outbreaks of eruption were like a persistent polymorphous erythema, sometimes with vesicles or bullæ, and always preceded and accompanied by intense itching. The case was thought to be an early stage of mycosis fungoides, but subsequently the diagnosis became clear, some of the patches disappearing, and others becoming cicatricial, and with the typical characters of L. erythematosus. In this form, the disease may be acute, either from the first, or successive acute outbreaks may supervene upon what was apparently an ordinary chronic and localised condition. The initial lesions are covered with crusts instead of scales, and when closely aggregated, resemble a pustular eczema, the differences being that the elementary component lesions are always discernible, the crusts very adherent, and when removed, reveal the patulous sebaceous openings. These acute cases are always accompanied by marked febrile symptoms of an irregularly intermittent type, with severe headache and boring pains of the bones and joints. Kaposi also describes persistent erysipelas-like swellings of the face with typhoid symptoms, a temperature of 104° with coma, and a mortality of 50 per cent.

The more chronic cases may have no defect of the general

* *Ann. de Derm. et de Syph.*, vol. for 1891, p. 389, and abs. *Brit. Jour. Derm.*, vol. iv. (1892), p. 123.

health, or there may be tuberculosis, anæmia, uterine or other derangements, either combined or alternating with the exacerbations and remissions.

Kaposi describes the following local complications of the acute and subacute cases:—(1) Sometimes, preceding the development of "the primary eruptive spots," subcutaneous, deeply seated, doughy, painful, and tender, nut-sized nodules appear while the skin over them is still normal, and disappear when "the primary eruptive spots" are fully formed. (2) Tubercular, œdematous, painful, doughy swellings, on which L. erythematosus spots may or may not subsequently appear, develop on the skin and tissues around the joints of the hands, feet, knees, and elbows. (3) Very numerous "hæmorrhagic flat blebs," from a lentil to a sixpence in size, disseminated or grouped round a central bulla, like a herpes iris; if the raised epidermis is removed, a hæmorrhagic point in the corium is still left, on which the eruption spot subsequently develops. (4) Swelling of the parotid and lymphatic glands in various parts, chiefly where the lupus process is most active; the swelling, as a rule, does not last long, but returns with each exacerbation, but suppuration is rare. (5) The persistent erysipelas-like condition of the face, already mentioned, which is very liable to lead to a typhoid state and a fatal issue, or genuine erysipelas or lymphangitis, which may spread rapidly over a wide area and endanger life, or be limited or transitory. When erysipelas is severe, it aggravates the lupus disease, but complete involution of the lupus may ensue, in this as in the chronic form, when the erysipelas lasts for some time.

In the third, or **telangiectic**, form, which Kaposi does not appear to recognise, there may be no marked change of the surface, except a persistent circumscribed redness, which close inspection shows to be due to dilated vessels. It may be single, but is commonly situated symmetrically on both cheeks, very much of the size and shape of the red patch which the circus clown paints on his face (the flush patch of Hutchinson), and is not very noticeable to the eye, but on pinching up the tissues there is marked thickening. Sometimes a few comedones may be present, but they are never conspicuous, and there is no desquamation. These cases run a very slow course, and may remain for years with very little alteration. If involution should occur, a little streaky superficial scarring would probably be left. I have seen it associated with the usual

form on the scalp. For Hutchinson's nævus lupus, see angioma serpiginosum.

The **nodular** form is very rare, and I am not aware that it has been previously described. I have seen several cases, and all but one in adult women; the youngest was a lady of thirty-four, who had had a red patch on the side of the nose, and the nodule developed on this a few months previously. In one of the most marked cases, about a score of roundish or oval, convex, distinctly raised nodules, from a hemp seed to a small bean in size, were scattered over the upper part of the face, nose, and lip. They were of brownish-red colour, very like L. vulgaris, but there were one or two on the auricle flatter and more like erythematous lupus, and on the back of the right hand there were two or three commencing nodules. A group on each side of the forehead, at the border of the hair, coalesced into a small patch, which was flattened in the centre, leaving a prominent rim, and subsequently was slightly cicatricial. The nodules enlarged very slowly, and showed very little tendency to undergo central involution. The patient was a stout lady of forty, dyspeptic, but with no organic disease in herself or her family. In a third case, an elderly woman, there were bean-sized patches scattered over the whole face; they were distinctly raised, and remained unchanged for years. Another case was in a man æt. fifty-eight, who had three small nodules on the left lower eyelid, and another on the cheek; they were destroyed by electrolysis. Individually, the lesions are often remarkably like a single nodule of L. vulgaris, but from their general behaviour and distribution it seems more probable that they belong to this type.

On the hands and feet, especially on the fingers and toes,* and elsewhere occasionally, the disease may begin as a persistent erythema, often looking like chilblains, but generally with some scaliness; but when involution occurs, whether spontaneously or as the result of treatment, there is always more or less atrophic

* Nevins Hyde, "Lupus Erythematosus as it affects the Hands: a Clinical Study," in *Amer. Jour. Cut. and Ven. Dis.*, vol. ii. (1884), p. 321,—a good paper, with a table of thirty-five cases on the hands, and *résumé* of previous observations. Ohmann-Dumesnil collected forty-five cases; in twelve it began on the face, in the rest on the hands. The lesions, as a rule, affect the dorsal surface of the fingers, and do not extend beyond the nails. *Ninth Intern. Med. Congress*, 1887. The Sydenham Society's *Atlas*, plate xlii., shows the erythematous form, and Tilbury Fox's *Atlas*, plate xlv., fig. 2, the crusted form, very well.

scarring, though sometimes it is so slight as to be only in whitish streaks in the healthy skin. It may also be seen as plaques, with a horny adherent crust and a red border; painful fissures are apt to occur in this form, from loss of elasticity of the skin and the constant movement. I have once seen it in patches remarkably like those of lichen planus, on the hands, but on the face and scalp, the patches were brownish-red. In these cases, the sebaceous glands are not primarily involved, and indeed it may occur in parts where there are no sebaceous glands, such as the palms and soles and the mucous membranes of the cheek and hard palate, where it is seen as soft red or grey exudations or whitish scars.

The course of L. erythematosus is, as a rule, very slow; cases may last for ten or twenty years, spreading slowly, but often with long intervals of quiescence; but it is always liable to more rapid development.

Etiology.—It is very much more common in females (two-thirds) than males, and occurs chiefly between the ages of eighteen and forty-five years, while it is never seen in infants, is rare in children, and very rare in old age. The oldest, in my experience, was a man of sixty-eight, in whom it had commenced in the palm twelve years before, and the youngest was ten years old; but Kaposi records a case in a child of three years. Speaking broadly, its period of earliest onset coincides with the cessation of the liability to a primary attack of L. vulgaris. The etiology is, however, obscure for the most part. A history of phthisis in the family is not infrequent—Hutchinson says even more so than in L. vulgaris, but I should not go so far as that. I have also thought that uterine derangements possessed an etiological importance. A feeble circulation is a favouring influence, and not infrequently the disease dates from some form of superficial inflammation, such as scarlatina or erysipelas. Prolonged exposure to great heat in the sun, or to great cold, especially cold winds, has appeared to be the exciting cause in some of my cases.

The same causes which predispose to seborrhœa may lead on to L. erythematosus, of which those cases which follow small-pox are notable examples, and it is said that persons with light skin and hair are more liable to it than dark-complexioned people.

Pathology.—The disease is generally considered to have no pathological relation to L. vulgaris, but some authors still regard it as a form of tubercular disease, and there are certainly cases in which the

two forms of disease seem to approach each other in clinical characters at all events. Anatomically, the lesions are indistinguishable from an *inflammation of the cutis*, in which the infiltration elements undergo fatty degeneration and lead to the atrophy of the tissue in which they are deposited. No tubercle bacilli have ever been found, and attempts at inoculation of animals have always failed.

The balance of evidence, in my opinion, points to its being primarily an inflammation of the skin, especially predisposed to by a feeble blood-current; secondarily, there is microbic invasion of the disturbed epithelial layers; while in the acute general form, there is an additional infective element introduced into the system, and especially invading the lymphatics.

In the majority of cases, the disease begins about the sebaceous glands and hair follicles, as Hebra first demonstrated clinically, and Neumann microscopically. Thin,* Kaposi, and Vidal, however, showed that it might also begin in the sweat glands. Further, Geber and Stroganow's researches go to show that it may commence in any part of the skin, from the papillary down even to the subcutaneous layers, while Morrison of Baltimore, in a recent investigation, came to the conclusion that it began in the deeper layers round the vessels of the sweat or sebaceous glands, and affected the papillary layer secondarily, this part of the cutis being much less densely infiltrated, and often in scattered foci.

Anatomy.—According to Kaposi, in recent foci of disease, collections of cells are seen round the follicles and glands of the skin, besides other histological signs of inflammation, viz., dilatation of vessels, proliferation of the vascular wall-structures, œdema, cell infiltration from the connective-tissue corpuscles and leucocytes, and this, either in the deep part of the corium, clinically represented as nodules, or in the surface layers, leading to red spots, and producing proliferation of the gland cells (seborrhœa), thickening or swelling, and scaliness of the skin. When the process is very acute, there may be exudation of serum, producing bullæ, or of blood, producing hæmorrhages.

In the regressive stage, the inflammatory symptoms may disappear, and the infiltration elements be absorbed, without leaving any trace behind. but, as a rule, degenerative processes occur, when the inflammation has existed for some time; then, besides slight swelling of the granulation tissue, there is granular cloudiness of the rete, and also of the inflammatory cells and the infiltrated connective tissue, of which the consequence is absorption and shrinking. The metamorphosis of the gland elements and the surrounding connective tissue leads to the destruction of the hair

* *Med. Chir. Trans.*, vol. lviii., 1875.

follicles, sebaceous and sweat glands, and fat, besides contraction of some of the blood vessels and ectasia of others. Hence arises atrophic scarring of the affected area.

Diagnosis.—The most characteristic features are—the age at which the disease begins, its slow course, its symmetry, and the position of the superficial patches on the cheeks and nose, the sharply defined border, the closely adherent scales with processes dipping into the sebaceous orifices, the absence of ulceration, and the presence of more or less atrophic scarring, while there are no papules or nodules. In all these particulars, except the slow course, it differs from *L. vulgaris*, to which it has some clinical resemblances, especially in adults, in whom nodulation is often inconspicuous or absent.

Less typical instances, where the scaliness is more abundant than usual, may be mistaken for *psoriasis*. This resemblance is so great, in some instances, that Mr. Hutchinson believes in a hybrid condition of "lupus-psoriasis." S. Mackenzie showed such a case at one of the societies, and Dr. Neale of Leicester sent a young woman to me (whose sister was subject to ordinary psoriasis), who had indubitable L. erythematosus of the face, while on the forearms there had been an eruption like psoriasis, which was cured with chrysarobin ointment, but left scars. It must, however, be borne in mind that scarring is in rare instances left in true psoriasis.

Similarly, the appearance of *eczema* may be produced, which Hutchinson calls "eczema-lupus." The sharply defined border in lupus should excite suspicion, and on attempting to remove the crusts in an acute case, or the scales in a chronic one, they will be found firmly adherent, and sending processes down into the follicular openings. Here, too, if the disease is of some standing, more or less scarring will be present. In the chronic cases, the slow development, the greater infiltration, and the trifling variations in intensity, will give the right clue. Tilbury Fox also described an acne lupus, or "lupoid acne," but this is alluded to and its pathology discussed along with acne vulgaris. On the hand, especially on the fingers, it may be mistaken for *chilblains*. The distinguishing features are the persistence of the lupus patches through the summer, and the slight scaliness. Sometimes there is slight streaky scarring on the backs of the fingers, sometimes a central depression and atrophic scarring, which, affecting the pulp of the finger, renders it conical and bloodless. Cases with

thick, yellowish, horny flakes covering the patch offer little difficulty in diagnosis.

These compound terms are better avoided; although, as before said, ordinary inflammations do sometimes seem to be the exciting cause of the lupus inflammation, and L. erythematosus frequently imitates simple inflammations, such as erythema exudativum, chilblains, etc., besides those already mentioned. The telangiectic cases are like *acne rosacea* in some respects, but the symmetry on the malar eminences, the absence of papules or pustules, and the induration and persistence, are distinguishing features, and there is no scarring in acne rosacea as a rule, except from the larger acne pustules.

Indeed, the cicatrices will distinguish it from any other inflammatory infiltration, except some of those due to syphilis. In them, there is more deposit and less vascularity than in the lupus, and they run a more acute course. The scarring of hydroa vacciniforme may sometimes suggest L. erythematosus, but the antecedent vesicular lesions and the intermittent summer course would be reliable guides.

Prognosis.—In the chronic limited patches, although often obstinate, great improvement can always be obtained, and a cure sometimes effected, but very seldom without leaving a scar. In the acute, subacute, or diffuse eruption, it is impossible to tell at once what will be the result, but it is so often fatal, that it is essentially a grave disease, and a guarded prognosis is all that is possible.

Treatment.—The internal treatment is not very satisfactory. Arsenic is relied upon by some, and Hutchinson records a single case in which it was apparently the curative agent. A case which I saw with my colleague, Mr. Battle, also got well with arsenic, no local treatment having been employed; but these cases are too exceptional to give much credit to the drug. McCall Anderson advocates the iodide of starch as curative in some, and beneficial in many cases. It is made by triturating twenty-four grains of iodine with a little water, and then gradually adding an ounce of starch, rubbing them well together until the mass becomes of a deep blue colour. It is then dried with a very gentle heat, and a heaped teaspoonful is given in water or gruel three times a day. The dose may be safely increased up to an ounce. The iodide should be freshly prepared and kept in a stoppered bottle. Iodide of

potassium also has its advocates; others, notably Bulkley, believe in phosphorus, $\frac{1}{50}$th to $\frac{1}{30}$th of a grain three times a day. I have given ichthyol, in five-minim doses in the form of a pill, three times a day after meals, and thought that it had some effect in reducing the hyperæmia, but all these direct remedies are in my experience very disappointing. I rely chiefly on those measures which will best promote the general invigoration of the patient, seeking for indications of anæmia, tuberculosis, gout, uterine or ovarian irritation, etc., and endeavouring to correct such errors, and, for the rest, address myself to efficient local treatment.

Locally.—In all cases, the affected parts should be protected against any sudden or great alterations of temperature and against any local irritation. If the inflammation is active, calamine or lead lotion—either the undiluted solution of the acetate, the glycerole, or the lactate of lead—may be painted on twice a day or more, and the emplastrum hydrargyri worn at night.

Collodion, not the flexile, has also given good results in my hands by compressing the vessels. Unna advocates ichthyol preparations, such as zinc ichthyol salve muslin at night, after fomenting with hot water. Where there is less hyperæmia, a lotion of sulphide of zinc, as recommended by Duhring, suits some cases. It consists of sulphate of zinc, sulphuret of potassium, of each thirty grains, alcohol ʒiij, and rosewater ʒiv. The zinc and potassium should be dissolved separately, and then mixed.

An excellent treatment is that recommended by Hebra. The spiritus saponatus kalinus is rubbed on firmly with a piece of lint or flannel. This removes the scales and fatty plugs, and if done thoroughly, there is some oozing of blood and serum, which dries into crusts, and these fall off in a few days, or sooner if soaked in oil. The process is then repeated, and sometimes, in a few weeks, a limited patch may be quite removed without even leaving a scar. It is especially useful in parts like the eyelids, where the skin is thin, and also before and after more severe applications; oil of cade ʒj or ʒij to the ℥j is a useful addition sometimes. Soft soap is a similar remedy, and may be used continuously spread on lint, and acts then as a mild caustic. Neither soft soap, nor the spirit soap should be used where there is active congestion, or they will very likely aggravate the eruption.

A milder and more generally applicable treatment with a similar idea is moderate friction of the part with benzolin, as recommended

by Hutchinson, followed by a mild antiseptic ointment, such as iodoform gr. 5 to ʒj, or boric acid. I can speak in the highest terms of this treatment, except where this is great hyperæmia. It should be used at night, and calamine lotion applied in the day-time; but if the benzolin produces any irritation, it should not be rubbed in more than two or three times a week.

Coming to stronger remedies,—For limited surfaces, Payne's treatment with salicylic acid, 3 to 6 per cent. in collodion, often gives excellent results. Unna uses 10 per cent. resorcin in collodion. It is safer to use not more than 2 per cent. at first, as resorcin appears to form some kind of compound with collodion, which sometimes acts as a strong caustic.

Richardson's sodium ethylate carefully painted on may be used for small patches, care being taken to keep the part dry afterwards till the eschar has separated. Chloracetic acid, applied with a glass rod, is a rapid superficial escharotic and not very painful, and is highly spoken of by Veiel, while for larger surfaces he prefers a 10 per cent. pyrogallic acid ointment, applied for three or four days or until a brownish superficial eschar forms, when it is covered with an iodoform bandage until the slough separates, and the wound is then dressed with iodoform. Unna's iodoform gutta-percha plaster muslin is also a good application for limited areas. Other methods with more or less good credentials are—painting with oleum rusci or cadini, or glycerine of iodine, composed of ʒj of iodine, ʒj of iodide of potassium, and ʒij of glycerine. Carbolic acid gives a good result, but is sometimes painful for several hours after application, and the eschar is slow in separating. Arsenical paste is also effectual for obstinate cases, but is very painful, and burns rather deeply. Purdon cured a case by painting with a 3 per cent. solution of resorcin, and covering with an indiarubber mask. For my own part, I try calamine lotion, collodion, with or without salicylic acid, mercurial plaster, benzolin, and sometimes the spirit-soap treatment, and if good results are not obtained, I try linear scarification, as recommended by B. Squire, with his instrument, a bundle of knives, constructed to make parallel incisions one-sixteenth of an inch deep. These incisions are then crossed in two or three directions, and iodoform well rubbed in. The division of so many vessels effectually starves the disease, the bactericide adds to the good effect, and great improvement results. The operation requires repetition several times. Veiel's instrument,

as improved by Pick (fig. 37), is on the same principle, and makes either punctures or cuts, and is well adapted for awkward corners, such as the angle of the nose and cheek and about the orbit, where Squire's instrument does not readily reach. The operation leaves scarcely any scar, and can be done either under local anæsthesia or nitrous oxide gas, where the area is not very great. This method is as great an advance in the treatment of this obstinate disease as erasion is for L. vulgaris, and almost supersedes caustics, which are painful and uncertain in the depth of their action.

Lassar prefers Paquelin's thermo-cautery or the galvano-cautery, scarifying lightly the affected area, so that only a thin eschar is produced, an antiseptic powder being dusted on after the operation. Only a small area should be done at one sitting.

Considerable judgment, to be gained only by experience, is necessary for the choice of the best method for any particular case of this obstinate disease; but it should always be borne in mind that, wherever there is active hyperæmia, this should be subdued by such means as would be employed in cases of dry dermatitis of any form before the more special measures are resorted to. Any application which irritates is only too likely to make the disease spread, and that, often at a most alarming rate.

SCROFULODERMA.

Deriv.— *Scrofa*, a sow.

Symptoms.—This term includes the various forms of suppurating dermatitis which attack strumous persons, who, almost always at the same time, present some of the other manifestations of this condition, such as enlarged, caseating, and suppurating glands, conjunctivitis, or the scars of keratitis, blepharadenitis, rhinorrhœa, or otorrhœa, joint or bone disease, etc., and probably the characteristic physique.

The most common origin for the lesion is in the skin over caseating and softening lymphatic glands, which implicate the tissue over it, so that the skin becomes red, flabby, undermined, and even riddled with sinuses, which have been, or are, in communication with the remains of the gland below. Ulcerations starting from this inflamed skin may slowly spread over the face and neck, which are the commonest positions for such lesions.

They may also occur independently of the glands, beginning as nodules in the subcutaneous tissue, enlarge to hazel or walnut-sized tumours, and implicate the skin over them, which becomes red, but not very tender, while the tumours, which are almost painless, soon soften with obvious fluctuation. Even then they may become absorbed and disappear, leaving only a red spot to mark their site. Or the tumour may be evacuated spontaneously, or by incision, and either heal up slowly, or form a spreading ulcer.

The strumous ulcer varies; sometimes it has thin, red, undermined edges, with irregular base, and flabby, thin, pus-covered granulations; or there may be only a flat ulcer, with sharply cut edges slowly spreading, but seldom healing spontaneously; such ulcers may be seen sometimes at advanced age in people who bear the scars and features of a strumous childhood, and are liable to develop into rodent ulcer or epithelioma. These ulcers of senile struma* often take on a papillary hypertrophy, and may form the so-called lupus papillomatosus or lupus verrucosus, which are, as I have previously stated, referable to scrofuloderma rather than to true lupus.

When the soft tumours, above described, occur on the limbs—a frequent position—the bones are also sometimes implicated, especially those of the fingers. In such cases, they may form a tumour, embracing the whole segment, and the bone often becomes carious (strumous dactylitis). In some of these cases, there is papillary hypertrophy and fungating growths, and the skin is of a livid red, pierced by numerous sinuses. The scrofulo-gummata may occur in the course of the lymphatics of a limb, as in cases described by Lailler, Besnier, and Hallopeau.

Strumous people are very liable to recurrent lymphangitic attacks at short intervals, often very like erysipelas. When this occurs in the lower limbs—its most frequent seat—a chronic lymphatic œdema results, which leads to the development of elephantiasis of the limb, often with considerable papillary hypertrophy. It is also not uncommon in the face, and leads to permanent swelling of the features, especially the nose, cheeks, and upper lip. There may or may not be true lupus associated with it in the earlier stage. Under the name of primary tuberculosis

* Paget, *Clin. Essays*, "Senile Scrofula"; Howard Marsh, "Senile Tuberculosis," *Lancet*, April 16th, 1892; Colcott Fox, four cases, *Brit. Jour. Derm.*, vol. iv. (1892), p. 160; also Travers Smith, *ibid.*

of the skin, Dr. Hebb read a paper on a case of this kind at the Medico-Chirurgical Society in March 1886,* in which the patient, æt. eighteen, had died with what was considered to be elephantiasis Arabum of the leg, and the skin showed microscopically, in addition to the usual appearances of elephantiasis, aggregations of large and small lymphoid cells with numerous giant cells interspersed, and in the lymphatics and among the aggregations of lymphoid cells, abundance of small bacilli, staining like those of tubercle.

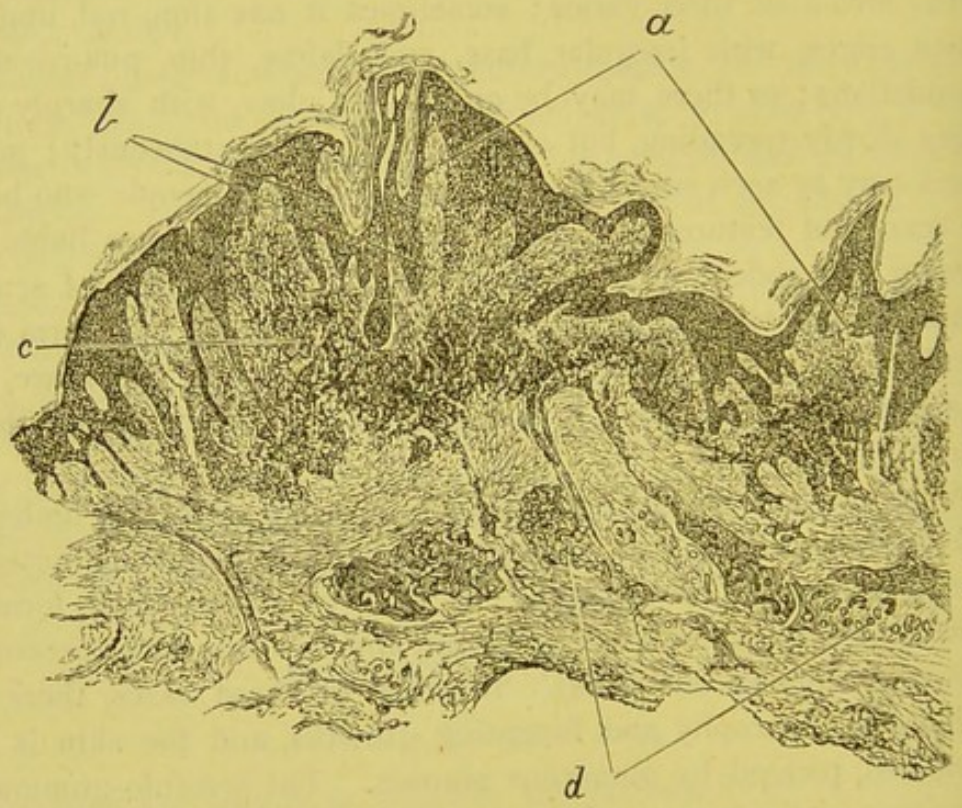

Fig. 38.—Lupus verrucosus from the back of the thumb.

a, enlarged papillæ; *b*, down-growing interpapillary processes; *c*, round-cell effusion, almost limited to the papillary layer; *d*, coil glands. There is considerable increase of the horny layers. Tubercle bacilli were present in moderate numbers. × 50.

Lichen scrofulosus and acne scrofulosus are other skin manifestations of struma, described in their appropriate places.

Diagnosis.—This has to be made from lupus vulgaris and syphilis.

In *lupus vulgaris*, while the other strumous lesions are present, there is an absence of the characteristic lupus nodules, destruction, and not infiltration, being the distinguishing feature of scrofuloderma. When the two conditions are present together,

* *Brit. Med. Jour.*, March 27th, 1886.

the ulcers are often deep, and the crusts thicker, greener, and more prominent.

Although most of the lesions are distinguishable, some seem to shade off, and the two conditions to be so mixed up together sometimes, that it is impossible to decide between them; but the treatment being on much the same lines in such cases, the exact diagnosis is not so important.

The distinctions from *syphilis* are the same as those between lupus vulgaris and tertiary syphilis. Leloir,* however, claims to have proved, both clinically and pathologically, that there are mixed conditions in which the lesion is a compound of scrofulo-tuberculosis and syphilis—in other words, that there is a *bonâ-fide* syphilitic lupus. His paper has not carried conviction to my mind that his view is correct.

Treatment.—This should be directed to the general health, where possible, by improving the surroundings, *e.g.*, sending the patient to live at the seaside, the administration of cod-liver oil and iron in full doses, such as ℥ss to ℥j of the syrup of the iodide of iron, with a liberal diet. Locally, unhealthy fungating granulations should be scraped away with a sharp spoon and strong carbolic acid applied; undermined skin should be snipped off with scissors, sinuses laid open, and the ulcers dressed with recently prepared iodide of starch paste or iodoform, or the yellow or black wash applied under oiled silk. Where operative treatment is undesirable or unsuccessful, salicylic and glycerine paste with carbolic acid is very efficacious. Chaulmoogra oil internally, in the form of emulsion, in from ten to thirty-minim doses, and externally as an ointment one to three, has, where tolerated, an admirably good effect. For the multiple cold abscesses, sulphide of calcium pills, gr. $\frac{1}{6}$ *ter die*, are useful along with general measures.

TUBERCULOSIS OF THE SKIN.

Symptoms.—This is an extremely rare affection, Chiari having found it only five times in 6,000 post mortems, of which between 3,000 and 4,000 had died of tuberculosis. It is almost limited to the lips and other neighbourhoods where the mucous membranes

* *Jour. des Mal. Cutan.*, vol. for 1891, September number, and long abstract *Brit. Jour. Derm.*, vol. iv. (1892), p. 165.

join the skin, viz., the nose, the anus, vulva, and glans penis, but in one case, it was behind the ear. The lesions consist of one or more discrete, shallow, not painful ulcers, which form apparently spontaneously,* have an irregular, eroded, moderately infiltrated edge, and, when the crusts which soon cover them are removed, show a reddish-yellow, granular surface, with a thin scanty secretion. They never heal, spread slowly but continuously, and may coalesce with neighbouring ulcers, becoming, as in Jarisch's case, serpiginous; they may thus extend over an area of one or two square inches, but as a rule are small; when on mucous membranes, yellow miliary papules exist near them. Since they are usually only part of an extensive infection, especially of the lungs and the mucous membrane of the respiratory and digestive tracts, they have a comparatively rapid downward course of a few months at the most. In a case of Kaposi's, the skin lesions were thought to be primary, tuberculosis elsewhere being limited to the intestine.†

Diagnosis.—Their nature may be suggested by the evidence of tuberculosis elsewhere, especially when there are ulcers on the oral mucous membrane or tongue. In the absence of signs of general tuberculosis, the diagnosis is often only made post mortem, when the microscope shows, in addition to the uniform leucocytic or lymphoid infiltration at the base and border of the ulcer, close by, or even away from the original seat of disease, true miliary tubercles consisting of lymphoid, epithelioid, and giant cells, often showing signs of commencing caseation. The best local treatment would probably be iodoform.

Tuberculosis verrucosa cutis is described under verruca necrogenica, with which it is identical.

Owing to the presence of tubercle bacilli being found in lupus vulgaris, scrofuloderma, tuberculous ulceration, and tuberculosis verrucosa cutis, the term tuberculosis of the skin is coming into use in a very loose way for all these affections. Although this may be pathologically correct, it is regrettable on clinical grounds, as it is becoming impossible to know what clinical variety is intended, unless the clinical description is very accurate and complete.

* *Vierteljs. f. Derm. u. Syph.*, 1879, p. 269. A very good representation in plate 50 of Neumann's *Atlas*.

† In a case of phthisis reported by Vidal, hard bean-sized nodes preceded the ulcers on the breast, face, shoulder, and arm; these "tuberculomata" softened and discharged a whitish tough mass.

SYPHILIS.

Synonyms.—Sibbens or Sivvens; Radezyge; Scherlievo; Mal de la Baie de St. Paul.

These names were given to unrecognised syphilis which occurred in an endemic form in Scotland, Norway, the east Adriatic coast, and Canada respectively. They are now almost disused.

Definition.—A chronic, specific, contagious, hereditary, and protective exanthematous disease, which may produce lesions in any tissue of the body, and is in many respects analogous to leprosy.

Although this work is concerned mainly with the skin manifestations or syphiloderma, an outline of the early symptoms will not be out of place, as they must be taken into consideration in the diagnosis. The classification of the symptoms into primary, secondary, and tertiary periods of disease is convenient for description, and true in the main, although arbitrary and ill-defined in some respects, since the secondary and tertiary symptoms often merge into each other, and while, on the one hand, symptoms which usually occur late in the disease are occasionally among the early manifestations, on the other, some secondary symptoms recur at a late period.

The period of incubation, or the time which elapses between exposure to contagion and the development of the initial lesion, is usually three to four weeks, but the extremes are twenty-four hours (R. W. Taylor), and eighty-one days (Pusch).* There are, however, few cases which occur outside the limits of two to six weeks.

The initial manifestation may be:—(1) A desquamating papule; (2) a superficial erosion with indurated base; (3) an indolent ulcer with a hard base extending beyond the sore, "the true Hunterian chancre."

In at least 90 per cent. of all cases, the initial lesion is on or about

* *Jour. des Mal. Cut. et Syph.*, July 1890; he gives many cases, including a case of ninety-seven days, but it was not quite conclusive—the girl had an intervening variola. Also abstract by Brocq, *Amer. Jour. of Cut. and Gen.-Ur. Dis.*, vol. viii. (1890), p. 492.

the genitals, but there are few parts of the body on which it is not recorded to have occurred. In estimating the value of a negative history, it is important to remember, that the primary lesion and the early symptoms may be so slight, as to be unnoticed or soon forgotten by the patient. The next phenomenon to the sore, is the enlargement of the lymphatic glands in the neighbourhood and even elsewhere, which usually begins about ten days after induration round the sore, and may not entirely subside for a year or more. Between the time of the appearance of the initial lesion and the general eruption, there is a period of quiescence of from forty to fifty days, as a rule (with extremes of twenty-five to one hundred and sixty days), or a month or six weeks after the enlargement of the lymphatic glands.

Symptoms.—Some of the following symptoms of general disturbance usually, but not always, precede the rash in a varying degree of severity:—transitory shivering and pyrexia, with the usual concomitants, malaise, languor, anorexia; marked anæmia with its usual symptoms; pains and tenderness of all the superficial bones, especially the clavicles, ulnæ, and tibiæ; headache, often unilateral, and most intense and distracting; neuralgia, especially about the orbit; rheumatoid pains of the muscles, joints, and even ears, and occasionally temporary insanity; all these symptoms being aggravated at night. The fever is present in a large proportion of cases, and may be dependent, or independent, of the rash. The independent form occurs in from six to nine months after infection, and may be continuous, intermittent, or irregular. In the other kind, the temperature is not generally high, but may reach 104° or 105° Fahr. in the evening, with a morning fall of 2° or 3° and even 6° (B. Yeo's case), and a pulse not exceeding 120 just before and during the development of the rash, the pulse falling as soon as the rash is all out. In a few cases, the outbreak of each eruption is preceded by fever.

At the same time, it must be borne in mind, that, in many cases, the general symptoms are quite insignificant or absent. The eruptions are very numerous, and are often named after the non-specific rashes, which they may resemble more or less closely, *e.g.*, syphilitic eczema, psoriasis, lichen, etc.; but since their clinical differences are greater than their resemblances, and their pathology quite different, this nomenclature leads to confusion, and the nature of the elementary lesions, whether erythema, papule, pustule, or

bulla, as proposed by Cazenave, is the foundation of the modern nomenclature.* The following classification is pathological :—

I. Circumscribed hyperæmia, with slight infiltration :—
Macular. Erythematous.

II. Marked infiltration of the papillary body :—
Papular, variously modified.
1. Dry papular.
2. Squamous, patchy, or circinate.
3. Lenticular or large papule.
4. Moist papular, or mucous tubercles.

III. Especial implication of the hair follicle or its immediate neighbourhood :—
Follicular, of progressive severity.
Miliary papular or follicular { large. small.
Miliary papulo-vesicular.
Miliary papulo-pustular.
Acneiform.

IV. Infiltration with sub-epithelial suppuration and superficial ulceration :—
Varicelliform and Varioliform.
Ecthymatous. { superficial. deep.
Bullous. { rupia. pemphigoid.

V. Gummatous infiltration with tendency to ulceration :—
Nodular syphilides.

VI. Extravasation of blood constituents :—
Pigmentary syphilide (pigment only).
Purpuric (blood).

Concomitant Symptoms.—The most common symptoms during the early eruption period—*i.e.*, the first year of disease—are the primary sore or its scar ; the enlarged inguinal, and often cervical and occipital glands ; the throat, at the least, congested and angry looking, and often ulcerated ; mucous patches or superficial ulcers in the mouth and on the tongue ; alopecia and lustreless appearance of the remaining hair ; and perhaps double iritis. At a later period, while in an average case, which has been properly treated, the tendency to eruptions is less, there may be superficial glossitis and stomatitis, and the signs of the previous lesions, whether in the skin, eye, mouth, throat, etc., alopecia differing from the early kind, and an increased tendency to gummatous deposits in or inflammations of the bones, viscera, nervous system, or testicles,

* This arrangement is slightly modified from one proposed by Sangster in *Lancet*, December 1st, 1883.

especially of their coverings, *e.g.*, periosteum, capsule of the liver, meninges, etc.

Pathology.—There has long been a suspicion that syphilis is a bacillary disease, and the discovery of lepra bacilli has strengthened it. Klebs, Birch-Hirschfeld, and others have described micrococci or short rods in various syphilitic lesions, and more recently (1884) Lustgarten has discovered bacilli in primary, secondary, and tertiary lesions which stain in the same way as lepra and tuberculosis bacilli, but decolourise by washing in nitric and hydrochloric acid, while those of lepra and tuberculosis do not. These were thought to be the long-searched-for materies morbi, but Alvarez and Favel in Paris, confirmed by Klemperer, have affirmed that a similar bacillus may be found in smegma and other normal secretions. The matter, therefore, is still *sub judice.*

Anatomy.—The anatomy of syphilitic eruptions has been examined by Biesiadecki, Auspitz, Neumann, Kaposi, Cornil, myself, and others, with general agreement as to the results in all the main points.

With the exception of the erythematous eruption, in which hyperæmia with comparatively slight cell infiltration are the main changes, all syphilides are characterised by a dense, pretty uniform, at first circumscribed, round cell infiltration enclosing the vessels. The process affects primarily, and mainly, the papillary body, and later, the deeper part of the corium, and secondary changes involving the epidermis, and even the subcutaneous tissue. The raw-ham colour is derived from the escape of blood-colouring matter of wandering or extravasated red corpuscles, though the bulk of the infiltration is due to leucocytes. An important point, on which Kaposi lays much stress, is, that the cells never organise into connective tissue, but undergo retrogression, and disappear either by absorption or suppuration. This retrogression always commences in the centre or oldest part (Virchow denies this), even, while at the periphery, fresh infiltration may be simultaneously taking place; hence the circinate form so often assumed, especially in the later lesions.*

A papule is at once the type and starting-point of all other lesions; a large papule or a tubercle is only an extension of the process that produced a small one; a slight increase in intensity will produce more fluid exudation in the epidermis, which is raised up, and a vesicle is formed on the papule as a base, or, if the intensity is greater still, a pustule is developed. When the lesion is large, or the cell exudation very closely packed as in gummatous infiltration of the skin, the vascularisation of the mass is obstructed, and it disintegrates, breaks down, and an ulcer is produced. Giant cells

* Neumann's investigations are not only the most recent, excepting my own, but contain a review of previous work on the subject. See *Viertelj. f. Derm. u. Syph.*, 1885, with numerous plates.

have been found in gummata, and also in nodular, follicular, and acneiform syphilides.

An important practical point, established by Neumann's observations, is that the diseased products, mainly exudation cells, persist in the tissues, though in diminished quantity, for from four to eight months at least after the disappearance of the clinical symptoms. The cells, which may be spindle shaped and pigmented, affect chiefly the vessel walls, hair follicles, sebaceous glands, and sweat ducts, but the upper cutis layer may also be infiltrated, and perhaps granularly clouded. There may also be thickening of the vessel walls and follicles. It is not possible to say how long these products persist, but his observations lend a strong support to Hutchinson's doctrine "of residues of the early period of syphilis, being the starting-point of later lesions." With regard to pigmentation, when that affects the exudation cells only, the duration is comparatively short, but where the connective-tissue cells are pigmented, the duration is very long, and may be permanent.

General Character of Syphilides.—The secondary eruptions are bilateral,* and in the main symmetrical, tending to be distributed over a wide area of the body surface; and while no part is exempt from them, they show some preference for particular regions, but never, like psoriasis, for example, affect distant points, leaving the rest free or nearly so. The localities chiefly favoured are the forehead, especially where it joins the scalp ("corona veneris"), the lower part of the face round the mouth, the margins of the nostrils, the nape, the trunk, the flexor aspect of the limbs, especially the palms and soles, while the backs of the hands and feet usually escape. In their localisation, they often contrast with non-syphilitic eruptions, which they may resemble in appearance. Many of the lesions tend to be arranged in circles, and some others in irregular groups. The colour is bright red at first, and it is often not till the eruption has been out for a few days that the well-known dull red tint, which is usually termed coppery, but which in most instances is of the tint of a raw ham, is developed; later still, it becomes brownish or yellowish-red, and ultimately stains of a more or less pronounced fawn or brown colour are left. The lesions frequently change their appearance, *e.g.*, papules developing into vesicles or pustules on the one hand, or spreading into squamous patches on the other; as a rule, the whole eruption does not come out at once, but gradually, and so it happens that all stages

* T. Falcone records [abs. *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 425] a case where all the lesions, pustular, scaly and roseolar, were entirely confined to the right side in a man of thirty-two. No cause was ascertained.

from the beginning to the end may be present together. Moreover, the variety of eruptions is as great as the number of elementary lesions to which the skin is liable; several of these are often associated or overlap each other, and, from these various circumstances, the important feature of "polymorphism" is produced, so that a polymorphous, non-pruritic eruption is almost characteristic of syphilis. Subjective symptoms, such as itching, burning, or pain, are often absent, and never conspicuous; but moderate itching is not uncommon when the eruption develops acutely, or is in warm situations like the perinæum or scrotum. The course is, as a rule, slow, both in development and retrogression, and they have a great tendency to recur.

These peculiarities of symmetry, position, arrangement, colour, variability, polymorphism, pigmentation, and absence of subjective sensations constitute a group of symptoms which, when taken together, enable a diagnosis to be made without further difficulty in most cases, but there is no more common source of error, than that of depending upon one or two such indications, without taking the whole of the circumstances modifying disease into account.

Tertiary syphilides, as a rule, occupy only a limited area, are non-symmetrical, and while possessing some preferences for such parts, as the face and scalp, the palms and soles, round the knee, etc., the seat is often determined by some local irritation.

There is, as a rule, compared with secondary eruptions, greater infiltration of the affected tissues, and a readiness to break down and produce scars, either by atrophy or ulceration, the latter taking a circinate form. They are monomorphous, of gummatous character, possess but little tendency to spontaneous recovery, and are apt to recur, but are always very amenable to treatment.

The **Erythematous or Macular Syphilide, Syphilitic Roseola or Exanthem**, is the earliest of the skin manifestations; it is very rarely absent, but, being often inconspicuous, or mingled with other eruptions, and unattended by subjective symptoms, may be overlooked by the patient. It usually comes out six or seven weeks from the first appearance of the initial lesion, taking, as a rule, a week or ten days for its full development, but may break out acutely in a single day, if congestion of the capillaries of the skin is produced by violent exertion, hot baths, or alcoholic excess, and there may be slight heat and itching. It may appear as

a diffused mottling or marbling of the skin, very like that often seen on covered parts, when exposed to the air, in spots the size of the finger tip, or as small as one-eighth of an inch in diameter, with ill-defined and irregular borders. The colour is a bright rose-pink at first, completely removable by pressure, but very soon it gets duller, or even purplish in hue, and after pressure, there is still a yellowish tint; ultimately, the macula fades into a dirty yellowish or greyish-brown stain, which remains long after the exanthem itself has gone, but there is seldom desquamation. The favourite localities are the front of the trunk, especially the chest and epigastrium, the flank, the back, less commonly the upper segment of the limbs, or the wrists, somewhat more upon the flexor than the extensor aspect. Occasionally, it is very widely spread over the body surface, but even then the face often escapes, or it only affects the forehead and round the mouth. In rare instances, it begins on the face. Febrile, and some of the other symptoms mentioned, generally precede the eruption, and it is seldom indeed not to find corroborative symptoms, such as redness or ulceration of the fauces, gland enlargements, bone-pains, etc. In five cases out of six (Bassereau), other forms of eruption also, chiefly the papular, will be present, and prevent error in diagnosis which might arise, especially with the papular rashes of measles, rötheln, urticaria with pink wheals, various erythematous eruptions, idiopathic, symptomatic, or medicinal, if regard be had to the skin lesions alone. The position on the trunk, while the face, the backs of the hands, and wrists, which are favourite positions for most erythemata, are free; the absence of itching, and later on the stains, are further important aids. Tinea versicolor can only be mistaken by a careless observer, for the stains of the macular and other syphilides are *in*, and not on the skin.

The duration varies from one to four weeks, but slight relapses of limited duration, chiefly on the forehead and chest, sometimes occur in the first year, and a smaller or circinate form may occasionally appear in the second or third year of disease. Fournier has drawn attention to a late syphilitic roseola, consisting of rounded, oval, or irregular, very superficial patches of a rose colour at first, later getting a brownish-red tint, paling on pressure, tending also to clear in the centre, while fine branny scales cover the peripheral portion. It is very rare, often associated

with other tertiary symptoms, and responds very slightly to internal treatment.

Anatomy.—The anatomy has been investigated by Biesiadecki, Kaposi, Neumann, and myself. The result of my investigation is as follows:—The change is limited almost entirely to the upper layers of the corium, mainly the papillary, in a rather sharply defined area. The epidermis is raised up as a whole, but the cells of the horny layers and rete are normal as a rule, except where the effusion is greatest and stretches them. Here, there may be some elongation of the lowest cells, which may even be so disturbed that the defined line at the junction of the epidermis and papillary layer is lost, the papillæ are more or less flattened out, the fibres of the corium are separated, presumably by the fluid effused, so that the

Fig. 39.—Part of a syphilitic macule. × 125.

a, connective-tissue bands of the corium separated by the cell effusion, *b*, *b*, which is chiefly in foci in the course of the vessels. In the upper part of the corium, the individual fibres are separated by the inflammatory effusion, and the papillæ are flattened out. *c*, normal epidermis.

individual fibres can be made out. The contrast between the upper part of the corium, with its separated fibres, and the normal corium below, is very distinct, but there is only moderate leucocytic infiltration, and this is almost exclusively round the vessels of the superficial plexus with their papillary branches; the capillaries and small arteries are moderately dilated, and both stuffed and surrounded with cells; in the walls of the capillaries are prominent nuclei, and there are round and spindle cells in the adventitia of the larger vessels, as was first described by Biesiadecki. There is slight cell effusion round the hair and sebaceous follicles, and sweat ducts, where they lie in the upper part of the corium, but the sweat glands, and all the structures in the deep part of the corium, are normal. Kaposi saw caudate cells in the connective tissue of the papillæ,—indicative, he thinks, of proliferation of the connective-tissue cells; and Neumann affirms that the change goes right down to the fat, but this was certainly not the case in the macule I examined. As all the structures of

the skin in his case appears to have been more affected, especially the hair sacs, muscles, sebaceous and sweat glands, than in the cases of Biesiadecki, Kaposi, and myself, possibly his patch was of longer duration. Neumann also observed granular pigment in the upper part of the corium, but only in the exudation cells.

Papular Syphilides are of two classes, according to whether they are formed round a hair follicle or independently of it. The non-follicular are formed by the papillary infiltration raising up the epidermis, and are flat or lenticular, and of two varieties, *large* and *small*. The follicular are situated round the mouth of a hair follicle, are conical, and are often termed miliary or lichenoid. Here also there are two varieties, *large* and *small*. The small flat papular syphilide is a mixture of papules and scaly patches; it is best known as the papulo-squamous syphilide, and the circinate scaly syphilide is a variety of it.

The large, flat papular syphilide has large, disseminate papules, not scaly as a rule, and is especially, from its shape, entitled to the term "lenticular," though that name is by some authors made to include both forms, and is used by B. Hill for the small flat papules in the scaly collar stage.

Syphiloderma Papulo-squamosum. *Synonyms.*—Small, flat, papular, nummular, or squamous syphilide; Syphilitic psoriasis.

This is seen at any period of the first, and occasionally in the second year of the disease, and is the commonest of the syphilides. According to the stage of the eruption, one or other of the above names is applicable. Commencing as a small, bright red, flat papule, it extends peripherally, and desquamates at the apex; when this scaly cap is thrown off, a characteristic collar of loosened scales is formed from a quarter to three-quarters of an inch in diameter, seldom larger, and according to the age of the patch, of a bright or dull brownish-red, or yellowish-brown colour, or, on the legs, occasionally purplish-red. The scales are usually scanty and dirty-looking, but sometimes rather abundant and silvery, but never so much as in true psoriasis. This scaly eruption is the stage most frequently brought under notice, to which the terms nummular and squamous are suitably and psoriasis erroneously applied. The eruption usually comes out in crops, and while, as a whole, it may last for months if untreated, many of the patches undergo spontaneous involution, leaving fawn-coloured stains, and

all stages of the eruption may thus be present together and form a very characteristic picture. The distribution is often very extensive. No part is exempt from liability to it; it is often all over the trunk and limbs, predominating on the flexor aspects, on the face, especially on the forehead, at the margin of the hairy scalp (corona veneris), and on the lower part round the mouth and nose. The patches, as a rule, though often closely set, remain discrete, but may coalesce in parts like the lower part of the face, round the perinæum or genitals, etc., but these areas will still present traces of the constituent patches (napiform aspect of French authors). Slight itching is not uncommon at first, but it is never a very prominent symptom.

Diagnosis.—It is distinguished from most cases of *psoriasis* by its predominance on the flexor aspect of the limbs, and by the uniform small size of the patches; but these criteria fail for guttate psoriasis, from which it may be distinguished by attention to the following points:—The syphilide is most common on the flexor aspect of the limbs; there are never widely distant foci of disease with healthy skin intervening; the patches are pretty uniform in size, and distinctly raised above the surface; the scales are usually scanty and dirty-looking and easily detached, and are never abundant enough to conceal the colour of the patch, which is of a duller red than that of psoriasis; brownish stains are left, and are often intermingled with more recent scaly patches; there are no bleeding or red points when the scales are removed; the palms and soles are often attacked; itching is slight or absent, and other forms of eruption, or, at least, other symptoms of syphilis, are sure to be present. In psoriasis, the eruption is mainly on the extensor aspect, at widely distant points, *e.g.*, elbow, knee, and scalp; the scales are abundant, silvery and firmly adherent, concealing the bright red patch, and when removed, bright red or bleeding points are visible; there is no brownish stain left after the eruption, except when arsenic has been given, and the general health is usually unaffected. The cachexia, the absence or slight degree of itching, and the early desquamation, with little if any tendency to vesiculation, distinguish the early papular stage from *papular eczema.*

Syphiloderma Circinatum. *Synonyms.*—Circinate, orbicular, or annular syphilide, or lepra syphilitica of old authors. This is

another form of squamous eruption of the secondary period, but is much less common, and usually later than the small patch form, of which it may be the relapsing representative in the second year, or even several years after infection; but its most common period is in the first five or six months to the end of the first year of disease, and it may be quite early. It may appear upon any part of the body or head, but the favourite positions are the nape and other parts of the neck, the forehead, and round the mouth and chin. In form, it is in circles from half an inch to an inch in diameter, or, by coalescence of two or more rings, in gyrate figures with clear centres and sharply defined, distinctly raised borders, about an eighth of an inch wide, dull, or yellowish-red after the first few days, and moderately scaly as a rule, but sometimes crusted with silvery scales, and, except for its position, very like the ringed forms of psoriasis. The distinctions are the same as those already mentioned in small patch syphilides, especially the cachexia, together with the presence of the eruption in parts where psoriasis is seldom seen. The occipital glands are almost always notably enlarged. Both this and the nummular form relapse more frequently than the follicular syphilides; but, as a rule, the older the disease, the less extensive is the rash.

This form especially, in Unna's view, is the outcome of a combination of the seborrhœic process and syphilis—a combination which he considers is very common, and exercises an important influence in determining the character and position of so many syphilitic eruptions. That syphilis predisposes to seborrhœa capitis has long been recognised, but few go so far as Unna in acknowledging the converse influence in so many syphilides.

On the palms and soles, the appearance of the eruption is considerably modified by the anatomical peculiarities of these parts, and is often called psoriasis palmaris or plantaris. In the secondary period, it is usually symmetrical, generally occurs in the second year of the disease, but may be quite early in the first year; when very early, it is the more likely to form only part of the general eruption, or to be associated with other distinctive symptoms.

It begins as a coppery-red spot, seen through the translucent epidermis, but not always perceptible to the touch; the epidermis over it, first thickens, gets opaque, gives way and forms irregular cracks, and has a worm-eaten aspect, or is thrown off *en masse*, without splitting up into lamellæ, or fissures may form in the course

of the natural deep lines of the palm, which are sure to follow their direction, and often go quite down to the corium. A somewhat similar squamous eruption may be seen in the tertiary period, often constituting the sole manifestation of the disease, after perhaps many years of freedom from the symptoms, and this in married women who have never shown any previous specific symptoms. Being often determined by local irritants, it is very likely to be unilateral, and is most common in those who have to do manual labour. It almost invariably begins in the centre of the palm, consists chiefly of thickened epidermis, which readily splits into deep, painful fissures, chiefly following the direction of the natural folds. On the foot, it is often associated with papillary hypertrophy.

Diagnosis is seldom difficult. In the secondary period, the presence of other characteristic eruptions and symptoms, and its symmetry and amenability to specific treatment, remove all doubt; but, as a late tertiary eruption, when all other specific symptoms have long ceased to trouble the patient, and the remembrance even of his old enemy has faded away, neither the diagnosis nor treatment is easy. *Eczema palmare* is often very like it. Here, too, there are great thickening of the epidermis and deep, painful fissures; but while the syphilide nearly always begins in the centre of the palm, eczema rarely does so, being generally at the wrist or root of the thumb, and reaching the palm later. *Simple psoriasis* is rare on the palms or soles, and very rare without the typical eruption elsewhere; there is less thickening or fissuring, and no special tendency to begin in the centre of the palm.

Anatomy.—I found the following changes in a squamous plaque (fig. 40) a quarter of an inch in diameter, removed from the bend of the elbow of a man who had had a chancre three months previously.

The upper half of the horny layers had desquamated, the rete was thinned in some places, and thickened in others; the thinned part was where the process was most acute, the outline of the lowest part of the rete was irregular from loosening of the lowest cells, which were vertically elongated, but attenuated. Where the rete cells had proliferated and the whole become thickened, the sharp definition of the boundary line between the rete and papillæ was preserved, and the rete processes were broader, as well as elongated.

In the more acute part, the papillæ were enlarged laterally and vertically, the fibrous structure was obscured with amorphous granules, and the round cells present in only moderate numbers; the effusion of serum and leucocytes was greatest in the papillæ, getting gradually less towards the

horizontal plexus, but not ceasing there entirely. Here and there, small collections of round cells were to be seen deep in the corium, *e.g.*, round a vessel communicating with the deep and superficial plexuses, between the acini of a sweat gland, or round the base of a hair follicle, though these structures were not, as a rule, affected in their deep part. Then, it was common enough to see cell infiltration between the angle of the rete, and a hair follicle or sweat duct, sometimes on one side only, pushing the hair over almost parallel to its arrector muscle, whilst when on both sides, it often extended downwards for a considerable distance.

In the border of a **circinate syphilide** (fig. 41), on the tip of the elbow, which came about six months after the chancre, and in which there was free scaling very like psoriasis, there was great increase of the horny layers, which were almost completely thrown off, in many of the sections leaving

Fig. 40.—Papulo-squamous syphilide from the bend of elbow. × 125.

a, enlarged papilla, free-cell exudation separating connective-tissue fibres; *b*, exudation-cell masses round vessels; *c*, similar cell masses round a hair follicle and in wedge-shaped foci in the deep part of the corium. The epidermis is thickened with downgrowth of the interpapillary part. The greater part of the scales have fallen off in the preparation.

only a few lamellæ still attached to the rete. There was also an increase in the thickness of the stratum granulosum.

The upper part of the scaly crust was homogeneous with closely compressed layers, but the deeper portion was of looser structure, and in the picro-carmine sections, could be seen to be permeated with minute rounded bodies both scattered and in masses, which stained with carmine and contrasted sharply with the yellow picric-acid-stained horny layers. In the rete, there was marked proliferation of its cells, and not only was it thickened as a whole, but the interpapillary processes were greatly elongated, and sometimes interlaced, forming lacunæ filled with leucocytes.

The papillæ were correspondingly enlarged, both vertically and laterally, to from four to five times the size of the normal; they were filled with exudation cells, which extended to the horizontal vessels of the superficial plexus,

in diminishing numbers, but very few leucocytes extended into the rete. The capillaries were greatly dilated, but there was not much infiltration of their walls. The deep layers of the corium were only slightly involved, there being only here and there slight effusion round the vessels. When the sweat ducts passed through the infiltration, there was proliferation of their cells and blocking of the lumen, but the deeper parts were not always affected, though in some sweat coils, there was cell infiltration between and proliferation within the coils. The hair follicles and their appendages escaped altogether, or with trifling cell infiltration round them. Clearly this is a different condition to what Neumann calls papulæ syphiliticæ orbiculares, in which he describes the hair follicles and their belongings as the centre and acme of the process.

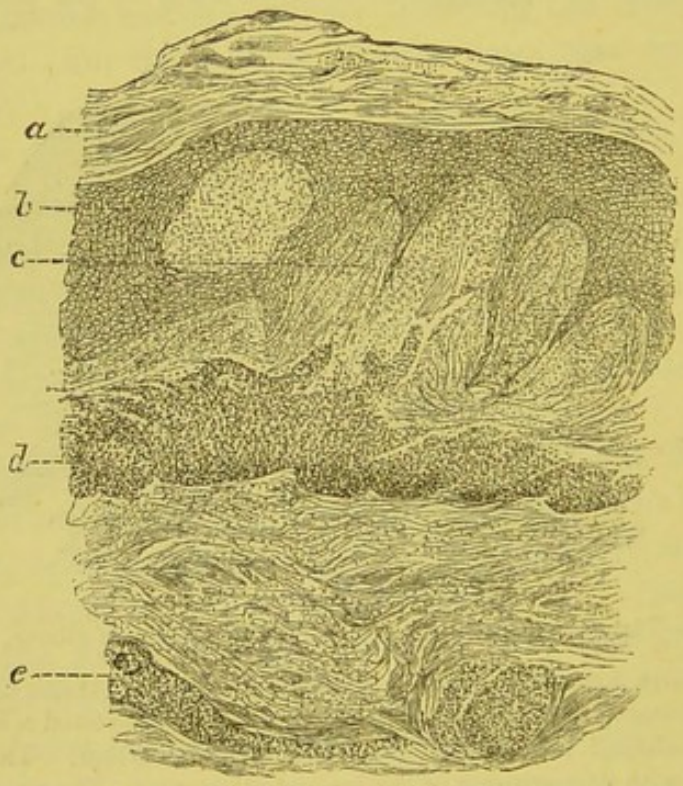

Fig. 41.—Circinate squamous syphilide. × 125.

a, horny layers forming scales; *b*, oblique section of an enlarged papilla in the greatly thickened rete mucosum; *c*, enormously enlarged papilla with cell exudation separating its fibres; *d*, dense round cell exudation in masses round the vessels; *e*, similar cell exudation round a vessel of the deep plexus. There is also a scanty cell effusion all through the corium.

Large Papular Syphilide. *Synonym.*—Lenticular syphilide. This is one of the common early eruptions often following closely upon or mixed up with the erythematous lesion. It may, however, be one of the relapsing manifestations at a late period. The papules may be widely spread and numerous, but not closely packed; or they may be few and localised, but do not often group, except round the mouth or genitals. The most common positions are

on the forehead, lower part of the face, nape, and trunk, especially the back, the flexor aspect of the limbs, and about the genito-anal passages of both sexes. The lesions are from an eighth to half an inch in diameter, distinctly raised, sharply defined, flatly convex, varying much in colour, and, as a rule, of a deep red or raw-ham tint, but sometimes pale, and at other times a purplish-red, firm and smooth to the touch, though after a time they may desquamate. The larger ones are nodules rather than papules.

The *diagnosis* is easy, both from the fact that other syphilides and symptoms are likely to be present, and because the large papules are practically diagnostic, being simulated only by the nodules of leprosy, in which the history of residence in a leprous district and the general symptoms of that disease would be decisive, but when the two diseases are associated, the diagnosis may be no easy matter, unless, as in one instance that came under my notice, anæsthesia were present, which is not always the case in tuberculated leprosy. A careful analysis of the history would be necessary in such cases.

Anatomy.—In the large papule (fig. 42), the cell infiltration affects the whole of the corium, commencing round the vessels of the superficial and deep plexuses, and their various ramifications. The cell effusion is usually greater in the papillary layer and the parts subjacent, so that here the structure of the corium is completely replaced or obscured by it, and the vessels appear in places, as if they were mere channels in the cell effusion; in other parts, they are only indicated by the position and arrangement of the cell masses; this is very noticeable in the vessels of the hair follicles and sweat ducts. There is, however, but little cell infiltration of the hair follicle itself, and its outline is not altered as a rule, but the fibres of the arrector pili muscles are often separated by leucocytes. Both in the sweat ducts and coils, the lumen was often blocked by proliferation of the lining cells, and sometimes the structure was destroyed. There was always more or less cell infiltration between the coils, in places quite obscuring the gland structure; the rete was stretched and thinned in some places, slightly thickened in others, and occasionally there was downgrowth of the interpapillary processes. The outline of the palisade layer was generally well defined, and there was but little leucocytic infiltration, while there was occasionally slight loosening of the upper part of the horny layer, which was otherwise unaffected.

Follicular Syphilides. There is a large and small form of this variety of papular syphilide, in which the hair follicle is the seat of the lesion, constituting the so-called "syphilitic lichen or miliary syphilide." The **larger** is not a very common eruption, but much more so than the **small** form. It generally occurs in

the first six months of disease, and its most distinctive feature is its occurrence in irregular groups of three or four up to twenty or more. The most common positions are the extensor aspect of the limbs and the back, but it is not unusual to find it on the neck and breast, and it may be widely spread. The papules are about the size of a large pin's head or millet seed, bright red at first, but soon changing to brownish-red, and becoming crowned with a small scale, which is sometimes the remains of a minute vesicle. When they involute, they become flattened, and even depressed below the surface, leaving a pigmented pit. The eruption comes out in crops, so that all stages may be present simultaneously;

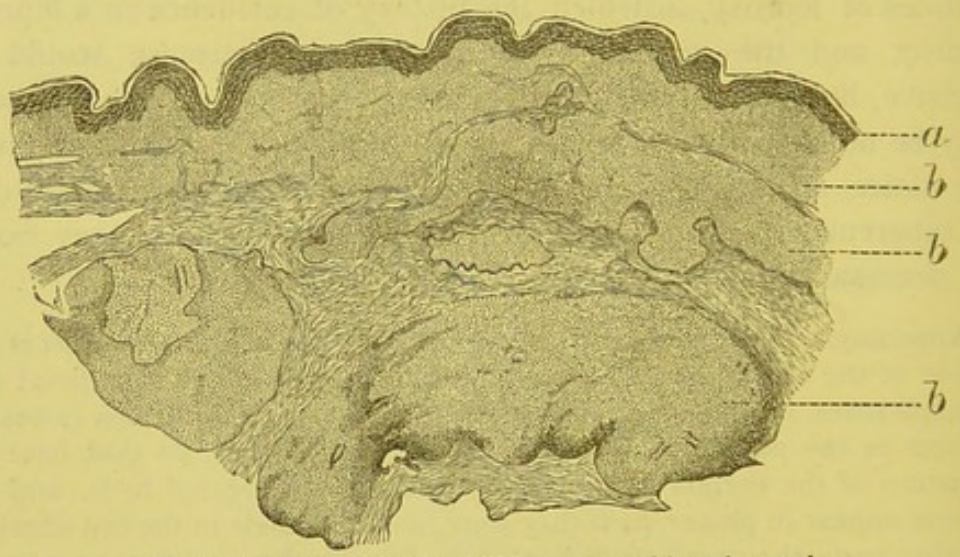

Fig. 42.—Lenticular syphilide. 2-in. obj., 2-in. ocul.

a, normal epidermis; *b*, dense cell masses round the blood vessels in the deep part of the corium, and uniformly diffused through the papillary layer.

occasionally the inflammation is intense enough to form vesicles or even pustules on the apex of some or all of the papules. Groups of brownish-red papules on the limbs and trunk, leaving pigmented and often atrophic pits, are very distinctive, and should always suggest further inquiry for the evidence of syphilis, which is invariably forthcoming at this stage.

The "**small follicular syphilide**" is a rare manifestation of syphilis in my experience, and is more common in women; indeed, all my cases were females. It may occur in the first or second year of disease, and, as far as the individual papules and their grouping are concerned, exactly resembles lichen scrofulosus, consisting of convex papules the size of a large or small pin's head, pink at first, but soon becoming fawn colour, or even the same as

the normal skin. They are generally thickly crowded together in groups, which may be irregular, roundish, or even in rings, often quite general in their distribution. This eruption is very persistent unless perseveringly treated, and the papules, on involution, leave minute fawn-coloured stains behind.

Diagnosis.—It has to be distinguished from *lichen scrofulosus*; the characters of the rash are identical in both, but while lichen scrofulosus is rare after puberty, and never later than thirty, the

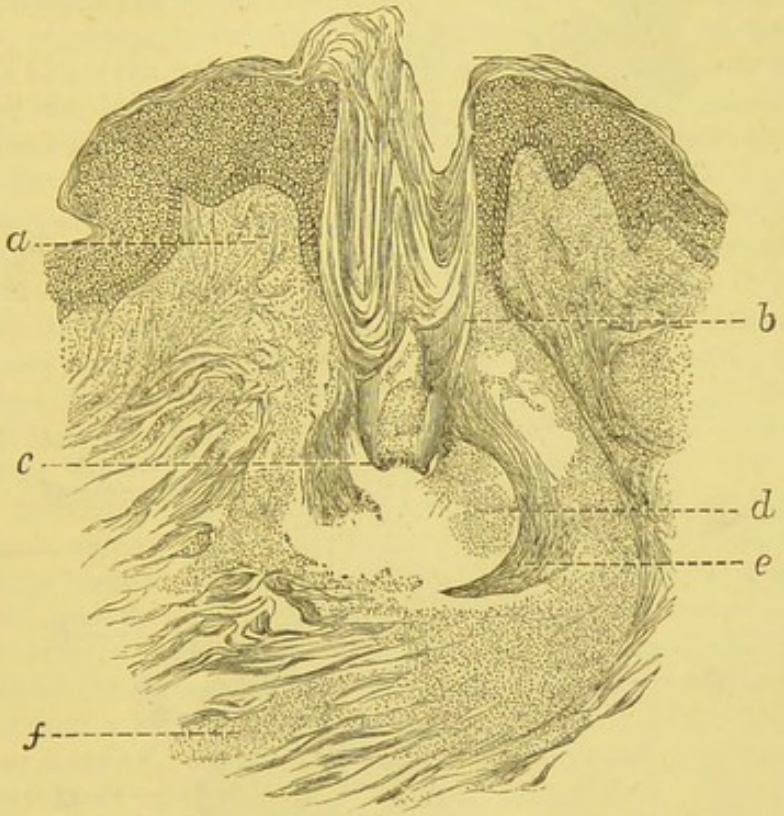

Fig. 43.—Larger follicular syphilide. × 125.

a, cell effusion in the angle of the hair follicle; *b*, dilated hair sac nearly filled with horny scales; *c*, hair papilla destroyed by the inflammation; *d*, inflammatory effusion separating hair sac from the hair itself; *e*, portion of dilated hair sac; *f*, masses of cell effusion below the hair follicle.

syphilide may occur at any age. Lichen scrofulosus is seldom seen on the limbs, and never on the head, while the syphilide is likely to be present in both these positions. The two conditions, the presence of this rash in a person over twenty,* and its being

* I saw once a well-marked example in a girl of twelve, with accidentally acquired syphilis. The disease had been present about two months, the eruption three weeks. There was no difficulty in diagnosis, as the other symptoms of syphilis were well marked. This form is well depicted in Wilson's *Atlas*, Plate A L. Plate A H shows the larger form, and Plate V. a similar eruption with pustular development.

on the limbs or head, should excite suspicion, and further inquiry will nearly always furnish evidence of past or present syphilitic lesions.

The miliary papulo-vesicular, the miliary papulo-pustular, and the acneiform syphilides may be regarded as merely developments of the miliary papular syphilide, the inflammatory effusion being sufficient to produce vesicles or pustules on the papular foundation.

Fig. 44.—Small follicular syphilide. × 125.

a, *a*, masses of round cell effusion completely enclosing the hair follicle; *b*, hair follicle unaffected; *c*, sweat coil with cell exudation between the acini.

Anatomy.—The examination of the papules in the **larger follicular syphilide** (fig. 43) showed that the whole process was in and around the hair follicle, but, unlike the non-specific lichen, the inflammation affected the hair papilla itself, whereas in all other lichens, the inflammation is limited to the angles of the follicles and rete, and immediately round the external sheath, and any changes in the follicle, such as the knob-like outgrowths described by Neumann in lichen ruber, pityriasis, etc., were secondary and only occurred in cases of long standing. There was slight disturbance in the horny layers adjacent to the hair follicle, and the rete was thickened and raised up by the effusion beneath, so as to form a papule round the hair. Three or four papillæ adjacent to the follicle were broadened and

slightly deepened by rete downgrowth, and there was dense cell infiltration, not only into the papillæ, but into all the tissue round the follicle for its whole depth; this cell infiltration did not, however, extend far from the follicle in a horizontal direction, but its boundaries were not abruptly defined. Vertically, it went down directly below the follicle, but either did not extend to the fat, or did so only by the narrow columnæ that Warren has described. Where the cell infiltration was greatest, the structure of the corium was quite obliterated, the vessels of the papillæ were dilated, and their walls studded with nuclei, the position of the larger vessels being only indicated by a well-defined mass of densely crowded cells, which entirely concealed the vessel wall, and evidently both filled and surrounded the lumen. Coming to the follicle itself, the lower part of the external root-sheath below the hair shaft was dilated into a circular sac, which was ruptured at the lowest part, where the pressure was greatest; it had evidently been filled with cells, though in the section drawn it may be seen that many have fallen out in its preparation (fig. 43). The internal root sheath was also ruptured by similar distension, and the papillæ were densely infiltrated with leucocytes, which had partially separated the shaft from the inner sheath; in some hair follicles, there was inflammation round them, but the hair papilla was untouched. The sebaceous glands were similarly involved in the process, their elements being either separated, or else only a fragment of the gland left, but the arrector pili muscle was not involved at this stage. In the sweat glands, which were near the affected hair follicle, there was cell infiltration between the coils and epithelial proliferation within them, but those further off were normal.

In a papule undergoing involution, which was removed from the flexor surface of the forearm of a woman æt. thirty-two, in whom the eruption had commenced three months previously, preceded for about three weeks by the usual premonitory symptoms, the papule was not formed about the hair follicle, but by the lifting up of the epidermis by dense cell effusion, in the centre of which a sweat duct could sometimes be traced. The effusion obscured or destroyed the corium structure where the effusion was greatest, only fragments of it and its vessels being discernible. The mass of it was pretty sharply defined below, where it was bounded by the upper wall of the vessels of the superficial plexus. The rest of the corium was normal, except in the immediate neighbourhood of the vessels, whose position was marked by a defined oval or round mass of leucocytes, but the vessel walls were invisible. In the epidermis, the most superficial part of the horny layers had desquamated, and the rete cells, especially the lowest, were elongated and narrowed, giving a feathery appearance to the lower border, and some of the interpapillary processes were enlarged. Unstained sections showed that there was marked pigment deposit in the lowest cell layers. Similar conditions existed on each side of the papule, but where the process was not so advanced, there was dense infiltration in the papillary layer only, and below that, it was only round the vessels, forming sharply defined branched cell masses, with the bundles of the corium almost natural except from compression, filling up the intervals between them. The hair follicles were very small, most of them cut transversely, and there was cell infiltration round the follicles and between the fibres of the arrector pili, but no change in the follicle itself. Wherever there were sweat ducts, there

was cell effusion round them, dense above, and blocking the lumen, but diminishing lower down and almost ceasing about midway down the corium; in some of the sweat coils, there was cell infiltration between the acini and cell proliferation within them, while others were quite healthy.

The above observations go to show that the papule may be formed round a hair follicle or sweat duct, according to the anatomy of the part attacked.

In the **smaller follicular syphilide** (fig. 44), there is a dense cell infiltration completely surrounding and permeating the follicular wall, but not affecting the root sheaths or breaking up the structure of the follicle. The cell infiltration was greater at the bottom than at the angles of the follicle; it was very marked round the adjacent vessels, but existed in only a slight degree between the coils of a neighbouring sweat gland.

The horny cells round the hair shaft were considerable in number, so that in the section, they imparted to the hair the appearance of a quill pen.

The **Vesicular and Pustular Syphilides.** Although these tend to run on from one to the other, and are often present simultaneously, they can be more clearly described by considering them separately. They vary much in their size and grouping, and so present some similarities to eczema, herpes, varicella or variola (early stage), and pemphigus, in the vesicular forms; and acne, variola (late stage), and impetigo or ecthyma, in the pustular forms. It must not, however, be inferred that they are really those diseases modified by syphilis, and qualifying terms founded on these resemblances are better avoided.

The foundation of nearly all these eruptions is a papule of the character already described, with the addition sometimes of a red areola. Upon this papule, the vesicle or small pustule develops; in some the vesicle passing into a pustule, while in others the pus is present from first to last. Each lesion is of short duration, a few days as a rule, and then ruptures or dries up into a scale or crust; the scale soon falls off, and leaves the flat, deep red papule, and this dies down, and a pigmented spot is left. The crust, which ensues on the pustule, takes longer to separate, ulceration often goes on beneath it, and ultimately a pigmented depression or scar is left. The eruption generally comes in crops, and so as a whole may last for weeks or months.

Vesicular Syphilides are much less common than pustular, are all early eruptions, and are all very rare after the first six months of the disease. They run a slower course, leave stains, and are almost invariably associated with other symptoms or eruptions of syphilis.

The **Small Vesicular Eczematous Syphilide** of Bassereau and Hardy, who first described it, is very rare. It comes out in crops of small, flat, slightly raised vesicles, each seated on a papule surrounded by a brownish-red surface, if they are grouped, or with an areola round each, if scattered. They do not enlarge much, nor do they burst and weep like true eczema, but after four or five weeks dry up; and the red areola having faded, only the deep red, flat papule is left, and this slowly dies down into a dirty brown stain. In exceptional cases, the vesicles become pustules, which dry into thick scabs, and conceal superficial ulcers. Their slow progress, their trifling degree of itching and burning compared with eczema, the absence of discharge, and the subsequent pigment, apart even from other signs of syphilis, mark differences much greater than the resemblances to eczema.

The **Large Vesicular Syphilides** are grouped or herpetiform, and if general, varicelliform, or varioliform. In the grouped large vesicular, or **herpetiform syphilide**, the groups may be irregular, circinate, or serpiginous by coalescence; in all, the vesicles are on a deep red base, which subsequently gets brownish. After lasting about a week, the vesicles rupture or dry up, leaving fine scales over the brownish raised base, the latter being rather persistent, but ultimately leaving only a stain, or, if the vesicle gets converted into a pustule, a thick yellow crust forms over it, with perhaps superficial ulceration beneath. The eruption may come on the face, limbs, or trunk, and is usually only in a few patches; it differs from *true herpes* by the groups being symmetrical, slow in development and course, by the vesicles being seated on a raw-ham-coloured base, perhaps also by the crusts and ulceration, by the subsequent stains, and by the presence of other symptoms of syphilis. Hutchinson also has described an eruption indistinguishable from herpes zoster, except that it is symmetrically distributed, that it is seldom limited to the chest, and that it is more persistent than the non-specific form. I have seen only one similar case, a young man who had a patch under each scapula late in the disease.

In the **varicella syphilide**, the vesicles are either convex or umbilicated, and the contents soon become cloudy; they are situated on a slightly raised plateau, of the usual dull red colour, and after a few days, the vesicles dry into thick adherent crusts of a greenish-black colour; when they fall off,

the brownish base is left, but it, too, soon gives place to a stained depression.

Its occurrence in an adult, its slow course, the vesicles being seated on papules, more closely grouped, with more crusting and even ulceration, slower development and greater persistence, to say nothing of the presence of other symptoms of syphilis, distinguish it from *varicella*.

The **varioliform syphilide** is only a slight modification of the varicelliform. The resemblance to *variola* may, however, be so great, that the greatest care is necessary in order to avoid error.

Liveing* relates a good case of this kind, which had been refused admission at several hospitals on the supposition of its being small-pox.

The absence of the characteristic premonitory symptoms of small-pox, the comparatively trifling rise of temperature in the syphilide, its slow development and course, and perhaps the evidence of syphilis, are the chief points to attend to.

Anatomy.—The anatomy of the vesicular syphilides has been investigated by Cornil and others. As far as the base is concerned, the changes are of the same character as in the papular forms. The fluid is chiefly effused above the rete in the granular and corneous layers, and is contained partly in the cells themselves, partly in the cavities of the ruptured cells; the rete cells are also excavated, but to a less degree, unless the vesicle is large or becomes a pustule; then the whole rete, and even the papillary part of the corium, are also involved and filled with pus cells.

There are two forms of bullous syphilide: "rupia" and "pemphigoid." They differ from the other vesicular and pustular syphilides in not being placed on a raised red base, and the areola is often pink, and not the usual raw-ham colour.

Rupia is one of the most characteristic syphilides, and as the term is not now used for non-specific lesions, it requires no prefix. Its most common period is in the second and third year of the disease or later, but it may also be a quite early eruption, as in a case I observed, in which it followed closely on a phagedænic chancre. It is always associated with profound cachexia, often, if in the secondary period, with a severe primary lesion, especially the phagedænic chancre, and it is much less common than it used to be, since improved diagnosis and treatment have made the

* Fifth edition, p. 346.

severe forms of syphilis comparatively rare. Its outbreak, especially if in the secondary period, is usually preceded or accompanied by a rise of temperature, and periostitis is common.

It begins with the formation of a bulla, a quarter to one inch in diameter, the contents of which are clear or blood-stained, but soon becomes purulent; then an areola forms, the covering of the bulla gives way and allows the contents to escape slowly, and this dries into a crust, under which ulceration takes place and extends peripherally. The pus drying, the crust gets thicker, and as the ulcer extends, broader also at the base; and thus the characteristic stratified, conical, limpet-shell crust is formed, with a pink areola round it. When the crust is removed, a sharply punched-out ulcer, shelving towards the centre, is revealed, or the ulcer may be visible beyond the crust, and the latter may fall off before it has time to acquire the limpet structure. These lesions are, as a rule, few in number, but are sometimes numerous, situated in any part of the body surface, but are usually most abundant on the limbs, and may be either scattered or grouped, sometimes in rings. The ulcers continue to spread, sometimes serpiginously, unless the patient is under judicious treatment; they heal slowly, leaving white scars, sometimes with a ring of pigment round them. The eruption may last for months by the formation of new crops of bullæ, is apt to recur after apparent cure, and only occurs in the acquired disease.

No difficulty can arise in *diagnosis*, unless the lesions are few and occur in the late tertiary period, when they may be mistaken for scrofulous ulceration; but this is not common in adults, and evidence of past lesions, either syphilitic or scrofulous, as the case may be, is rarely wanting. The scars of syphilis are round, more superficial, non-adherent, thin, and pliable; those of scrofula, are generally irregular, adherent, and seamed. The position of the lesions is often quite different, and may assist, with the other signs, in making the distinction.

The **Pemphigoid Syphilide**,* or so-called syphilitic pemphigus,

* Zeissl's case was a typical instance; also Hardy's, *Lancet*, Paris correspondence, 1870, p. 65, man æt. thirty-eight; Tilbury Fox's, *Lancet*, 1874, vol. ii., p. 43, man æt. twenty-five; Gajasy, *Berl. klin. Woch.*, No. 24, 1880; abs. *Ann. de Derm. et de Syph.*, vol. for 1881, p. 771,—the eruption was general and recurrent.

unlike rupia, is a rare eruption in acquired, occurring almost exclusively in congenital syphilis, and its existence is scarcely admitted by some authors. I have met with one case in a married woman æt. nineteen, but unfortunately no particulars have been preserved. It is generally almost limited to the palms and soles, but it may be widely spread; the contents seldom remain clear long. Its position, association with syphilitic symptoms, and amenability to mercury, are its distinctive characters. It is one of the manifestations of a severe form of syphilis.

Pustular syphilides are not uncommon at all stages of the disease, but occurring in the early stage, are, if at all extensive, indicative of deep cachexia.

The small pustular or **acneiform** syphilide is one of the early and rarer forms; its favourite positions are the face and shoulders, but it may come anywhere except the palms and soles, as in the following well-marked case, in which the eruption was general. Annie S., æt. twenty, admitted into U.C.H. September 1886. The appearance of the rash was exactly like the case represented in Bateman's *Delineations of Cutaneous Diseases*, 1828, plate xliv., fig. 1, under the name of ecthyma cachecticum. The pustules were flat, about one-eighth of an inch in diameter, on a raw-ham red, raised base, which was broader than the pustule, and this again was surrounded by a narrow areola; these soon dried into a scab in the centre, forming a three-ringed lesion, with central dark scab. The whole of the contents of the pustule soon dried into a crust, which fell off, and left the raised, deep-red-tinted base, and this was succeeded by a dirty-brown stain. These pustules were partly scattered, partly in irregular groups. Most of the eruption came out rather quickly, and then spread more slowly, affecting the whole body surface—the face last—except the palms and soles, which were free, with the exception of two or three red, slightly raised spots on the left sole. The patient improved rapidly under mercury, and was almost well in a month. Some of the papules of the larger lichenoid syphilide are frequently capped with a small pustule, and probably the above eruption is only a further development of this condition.

Diagnosis.—Its resemblance to true *acne vulgaris* is not very great. The positions, the drying up of the pus into a scab, the characteristic red base, the absence of comedones, the duration of the eruption, the evident ill-health, and the other symptoms of

syphilis, suffice to distinguish it. Horand* describes a tertiary eruption limited to the nose, which closely resembles acne. It is rare, occurring three times in a thousand cases of syphilis.

Small pustules, single or aggregated, are not infrequent in the scalp, whilst erythematous or other syphilides are present on the body. They are soon covered by yellowish-grey or brown crusts, forming patches round a single hair group, and are called by some "impetiginous syphilides" or "syphilitic impetigo." They are sometimes seen on the forehead and face, and, like the others, are formed on a papule, though this is not apparent in a patch, and ulceration occurs beneath the scab, and leaves a pigmented cicatrix.

The large pustular syphilides are seen only in the cachectic. The so-called "ecthymatous syphilide" may be superficial or deep, the superficial occurring mainly in the early stage, the deep in the third period. The lesion commences round a hair follicle, forming a pustule about a third or quarter of an inch in diameter, drying into a greenish scab, on a raised red base, surrounded by the usual coppery areola, develops slowly, lasts for a few weeks, but fresh crops often keep up the process for months. It is most common on the lower limbs, but is not confined to them. Their slow development, coppery areola and base, the cachexia that accompanies, and the pigment scars that follow, are the diagnostic features. Like rupia, when it appears early, it is often preceded by a severe form of primary lesion.†

Nodular or Tubercular Syphilides are convex projections of the skin, too large to be called papules. They are most common in the tertiary period, but may also be an early manifestation accompanying or following closely upon the erythema. When occurring in the first year, they are from a quarter to half an inch in diameter, sharply defined, considerably raised, of the characteristic coppery colour, sometimes slightly scaly, occasionally breaking down and ulcerating, with thick scabs and much inflammation round, accompanied with much pain, and followed by white, depressed scars. They are solitary or few on the face, limbs, and trunk, but are not grouped, and some other eruption is often present. In the

* Horand, "Syphilide acnéique du nez," *Ann. de Derm. et de Syph.*, vol. vi. (1885), p. 385.

† There is a good portrait of the eruption in Duhring's *Atlas*, Plate D.

tertiary form, although perhaps solitary at the commencement, others soon form round it. They are usually closely aggregated in one or two situations, very often on the forehead and other parts of the face, but in some cases cover a considerable part of the face bilaterally, often more closely aggregated on the nose and neighbouring parts, the lesions varying in size from a hemp seed to a large pea or bean. The diffuse is less likely to ulcerate than the circumscribed variety ; the latter may coalesce into an infiltration, though the component nodules are generally discernible, at least on the edge, and is then very liable to break down and ulcerate, especially when near the mouth, or on the nose, either where it joins the cheek or on the ala. On the limbs and trunk, large tracts are sometimes involved, but never symmetrically. By peripheral evolution of the new nodules, and central involution, with or without ulceration, of the older ones, a cicatrix, more or less pigmented, results, either from atrophy or ulcerative destruction. These scars, with their nodular border, are very characteristic.

These infiltrations, which are really gummata, are called by some writers "**syphilitic lupus.**" They ulcerate serpiginously, and when they occur about the face, especially the nose, may closely simulate lupus vulgaris ; indeed, Leloir claims to have proved that scrofulo-tuberculosis and syphilis may be combined in the same lesion, but this has not yet been accepted. The ulcer of gummatous syphilis is covered with a thick greenish-brown crust, has a sharply punched-out margin and a circinate or reniform outline, which is very suggestive of its nature, and may produce considerable disfigurement if on the nose, though it is seldom deep in other parts. The scar is usually flexible, white, and shining.

Diagnosis.—From lupus vulgaris, the later tubercular syphilide may be distinguished by the following considerations : The age of the patient—lupus vulgaris nearly always commences in childhood, a period in which this form of syphilis would be rare ; by the nodules—those of syphilis are solitary at first, followed by smaller ones round each, and distinctly raised and copper-coloured—those of lupus are multiple from the first, embedded in the skin, brownish, translucent, and "apple-jelly-like" ; by the duration—the syphilide would rarely be more than a year or two in duration, and syphilis will do more damage in a few months, than lupus in as many years ; besides, in most cases, there would be some

evidence of past syphilis. Nevertheless, occasionally when all such evidence is wanting, as may be the case in women, although there will be generally a presumption in favour of syphilis, the evidence may be short of being conclusive ; then a week or two's treatment with iodides will produce such decided improvement in the syphilide, as to remove all doubt.

Subcutaneous Nodules or Gummata are, like the superficial lesions, common in the tertiary period, but are occasionally secondary. A firm, painless, well-defined, pea-sized nodule can be felt deeply embedded in the skin. This enlarges both laterally and vertically, and as it approaches the surface, the skin which had been normal, becomes of a purplish-red and adherent to the tumour, which softens in the centre, ruptures, and discharges a puriform fluid, and leaves the cavity to either extend or fill up, according to the patient's health or to the treatment ; but, under favourable conditions, such a tumour may be absorbed before reaching the skin and disappear without leaving a trace. These gummata occur chiefly about the limbs, especially round the patella, and to a less extent round the elbow. So much is this the case, that scars round the patella, not due to injuries, are practically diagnostic of syphilis. Before they reach the surface, they may be distinguished from fatty tumours, by their more rapid development, firmer consistence, and absence of lobulation. When they have suppurated, they differ from malignant tumours in their abscess-like cavity, the absence of fungation, bleeding, secondary enlargement of neighbouring glands, and the smaller area of ulceration. Their structure is exactly like gummata in the liver or elsewhere.

Lesions of the Mucous Membranes. Syphilis affects the mucous membranes in much the same way as the skin, but the appearances are necessarily modified by the different physical conditions of the parts; consequently, such lesions are called mucous tubercles, mucous patches, condylomata, etc. These lesions are not absolutely confined to the mucous membranes, as they also occur in those parts of the skin where the same conditions of warmth and moisture obtain, such as the axillæ, under the breasts, at the navel, between the toes, behind the ear, or under the chin in fat persons; but the more usual positions

are, inside the lips near the angle of the mouth, the buccal mucous membranes, the fauces, the tongue, and at all parts where the mucous membranes join the skin, such as the vulva, the anus and perinæum, the scrotum, the angle of the mouth, and the nostrils. The lesions are primarily of any size up to half an inch or so, roundish, but, when close together, may coalesce into large patches. The patches are slightly raised, flat, with sloping margins, and, like the skin lesions, are bright red at first, and then brownish-red, but do not leave pigmentation behind them. The epidermis over these elevations soon peels off; a thick pus is exuded, which is often offensive and highly contagious, reproducing similar lesions wherever it touches. This is often seen on the buttocks and vulva, where they reach their highest development, and appear to be broken up into segments, constituting condylomata. The infiltration prevents the free mobility of parts like the mouth and anus, and painful fissures or rhagades are formed, which leave the characteristic radiating, white scar lines, so often seen round the angles of the mouth. They can scarcely be mistaken for anything else; true warts in the same situations have more epidermic covering, and are pedunculated. Moreover, mucous tubercles would be sure to be accompanied by other signs of syphilis, since they generally occur in the first six months, though solitary lesions may occasionally be seen in the tertiary period.

The fauces, pharynx, and soft palate may also be affected with an analogous condition. Diffused redness and slight or marked swelling, in the case of the uvula, are visible, and there is some discomfort in swallowing and slight dryness of the throat, or occasionally severe pain. As a rule, all this disappears in a few days, under treatment.

Besides the erythema and mucous tubercles, shallow ulcers and excoriations are common on the buccal mucous membranes. The edges are sharply cut, but uneven, and there is some redness round them, and the surface is greyish-white from exudation, though the actual edge is white from sodden epithelium. They are seen on the pillars of the fauces, on the tonsils, the buccal mucous membrane, and outside the lips. On the tonsil, deep ulcers and even sloughing may occur occasionally.

Tertiary lesions affect chiefly the gums, hard and soft palate.

On the gums, serpiginous ulceration, beginning behind the incisors and slowly extending, may be seen four or five years after infection, and occasionally earlier. Similar eroding ulceration may affect the hard palate, exposing and leading to the necrosis of the bone.

Syphilitic Ulceration. Although ulceration is the outcome of one or other of the previously described lesions, a separate description may be of practical utility. Following Kaposi, they are of four kinds: (1) from a nodule in the skin,—superficial, round, reniform, or serpiginous; (2) rupial,—round, reniform, or serpiginous, with thick crusts; (3) from a cutaneous gumma,—irregular, deep, and crater-like; (4) from subcutaneous gumma,—irregular and deep.

The typical ulcer is formed from a single nodule; it is painful and tender, circular, well-defined, finely indented at the edge, and undermined. The margin and floor are covered with a greyish-yellow layer from disintegration and infiltration, which is circular at first, but after a time, this is limited to one portion, amounting to about two-thirds of the circle, and the characteristic reniform shape is produced. The concave part cicatrises, while fresh infiltration extends beyond the convex border of the ulcer; the confluence of several ulcers produces serpiginous outlines both in those from tubercles and from rupia. The ulcers arising from gummata are relatively deeper and of smaller size, with irregular, crater-like walls, spreading only at the orifice of the cavity. All syphilitic ulcers become covered with thick, greenish-yellow crusts, which always require removal for diagnosis and treatment.

Pigmentary Change in Syphilis may result from—(1) increase, (2) decrease, of the normal pigment.

(1) Increased pigmentation may arise—

(*a*) From the previous eruption;

(*b*) Independently of any eruption, that is to say the so-called pigmentary syphilide.

(2) Loss of pigment occurs on the site of previous syphilitic lesions—

(*a*) In the form of white spots on the site of previous macular or papular syphilides (leucoderma syphiliticum);

(*b*) From destruction of tissue, as in the scars of ulcerative and some pustular syphilides, but there is often marked and persistent pigmentation of, or round such scars, at all events at first.

Virchow's theory of pigmentation is the one generally accepted, viz., that it is due to blood-colouring matter, which permeates the tissues, and is deposited partly outside the cells as hæmatoidin crystals, and partly within the cells as pigment granules. Neumann* says that the pigment in syphilis is found both in the exudation and connective-tissue cells, and free in the necrotic tissue of the rete and also in thin, thread-like tubes (processes of cells) which carry the pigment. When the pigment is only in the exudation cells and rete, it may disappear sooner or later, by absorption or desquamation, as occurs after macular, papular, and some pustular syphilides.

When it is enclosed in the connective-tissue cells, which may, in some cases, be completely filled except the nucleus, the pigmentation persists for a very long time, and may be permanent. This is seen on the borders of scars following syphilitic ulceration and many pustular lesions, after cutaneous gummata, and some grouped papules; the pigment is here granular. Neumann is convinced that the white spots following papules and maculæ are produced by the epidermis being cast off, and the newly formed epidermis not taking up any pigment. Pigmented cells, however, remain from eight to eighteen months in the papillary layer, partly between the connective-tissue cells, partly round the blood and lymph vessels. Riehl confirms this.

Pigmentary Syphilide.† *Synonym.*—Syphilitic leucoderma. This was first described by Hardy in 1853. The most common period for its development is from the sixth to the twelfth month of disease, but it may also come quite early, or in the second or third year. In a case of mine, a young married woman, it appeared about the third month, and was limited to the neck, and accompanied by the erythematous syphilide, which she averred had not preceded

* *Loc. cit.*, p. 223, *et seq.*, in which the whole subject is discussed.

† *Literature.*—Hardy, *Maladies de la peau* (Paris: 1858), p. 154. Taylor, *Amer. Jour. Cut. Ven. Dis.*, vol. iii., p. 97,—a good article with chromo-lithograph; and at p. 218 same volume is an abstract of Maireau's *Thèse de Paris.* Fournier, *Leçons sur la syphilis*, also gives chromo-lithograph. Santin also has written an inaugural thesis upon it.

the pigmentation; and in a case of acquired disease, in a girl of nine years, it occurred in the sixth month. It is rather a rare condition, but is seen much more frequently in women then in men, in brunettes more than in fair women, and seldom after the age of thirty-five, but Chambard records a case in a man æt. seventy-one. Its seat is chiefly on the neck, especially at the sides and back; and it may occasionally be seen on the face, chiefly on the forehead, the chest, or flanks, but rarely on the limbs. The lesions are irregularly margined, round or oval spots, from an eighth to one inch in diameter, well or ill defined, with a yellowish-brown colour, but the surface is otherwise unaltered; they may be obvious, or require looking for, discrete or confluent, and the skin in the intervals between them appears abnormally white, though whether it really is so is a disputed point. It may be the only symptom of syphilis, but is more frequently only one of many. Most German authors * regard it as simply a leucoderma of syphilitic origin on the site of a previous roseola; but Taylor of New York, while admitting that there is a syphilitic leucoderma, having watched the development of a large patch from the time when it was not larger than a pin's head, considers the pigmentary syphilide to be *sui generis*, and that the leucoderma is only simulated. According to Neisser and Riehl, it is really a displacement of pigment, which is less at one part and increased all round. It lasts from two months to several years, is uninfluenced by treatment, and is sometimes permanent. Ehrmann says that it is produced only in those parts of the skin where there has been a preceding syphilide, which has involved the corium and destroyed the pigment-carrying cells, or changed them into unpigmented ones. Darkening of the skin ensues if the deeper layers are involved. If this is true, the lesions are certainly not visible on the surface either before the loss or increase of the pigmentation.

Diagnosis.—It should not be mistaken for the pigmentation following the erythematous or other syphilides, while from tinea versicolor the distinction is easy; from its position, and the fact that the colour is *in*, not on the skin, and that there is no fungus. From uterine chloasma, the conditions under which it occurred would be the best guide.

* Poelchen, *Vitiligo acquisita Syphilitica*, Virchow's *Archiv*, Bd. cvii., p. 535, with plates, says nearly all women's necks are pigmented, and that the roseola spots remove a part of this when they fade.

Purpura may be seen occasionally on the lower extremities, and its relations to acquired syphilis have been discussed by Stephen Mackenzie * and others. In congenital syphilis, it is more common and important, as Behrend has shown. The possibility of its being produced by iodide of potassium must be borne in mind.

Alopecia. Loss of hair may occur in four ways. In the secondary period, there may be a general thinning of the hair, as a part of the general malnutrition, occurring at the third month and onwards. This may be of various grades, from being hardly noticeable up to very extensive but irregularly distributed baldness, as in R. W. Taylor's case,† which he ascribes to the commingled seborrhœic process. The hair may also come off in round patches, like alopecia areata; *e.g.*, Ethel F.,‡ æt. twenty-six, had symmetrical patches an inch and a half in diameter in various parts of the scalp, a squamous eruption, and ulcerated sore throat and tongue. The hair was rapidly restored by specific treatment. In cases of more severity, the alopecia may spread to one or more additional regions, such as the eyebrows (especially in women, which, according to Fournier, is characteristic), the beard, the axillæ, or the pubes. In an exaggerated but rare variety of this form, there may be complete, general alopecia, the patient being left without a single hair in any part of the body. These cases readily respond to mercurial treatment, as a rule, and in all the preceding forms, the hair grows again within five or six months. The symmetry of the patches, its amenability to treatment, and the presence of other symptoms of syphilis, would distinguish the patchy form from alopecia areata. An incomplete, patchy loss of hair may also occur on the site of eruptions, from the inflammation involving the hair follicle; this is transitory. In the tertiary period, the hair may also be lost, but in a less direct way; bald patches may be left by ulcerative or pustular lesions destroying the whole skin structure and producing scars; this is of course irremediable. General thinning, leading to extensive and often permanent baldness, may be consequent upon seborrhœa, which is a not infrequent sequence of syphilis. The local treatment for seborrhœa, combined

* *Med. Times and Gazette*, vol. i. (1879), pp. 173, 279, 501.

† "The Seborrhœic Process and the Early Syphilitic Eruptions," *Jour. Cut. and Gen.-Ur. Dis.*, vol. viii. (1890), p. 165.

‡ U.C.H., O. P., No. 69, 1880.

with the general treatment for syphilis, offers the best chance of restoration. In old syphilitics, the hair is also often left harsh, dry, and wiry.

Nail Affections.* These are of two classes: one, those due to lesions of the bed or matrix, or both, constituting onychia (chronic); the other due to lesions round the nail, perionychia (acute or chronic). In the first class, the changes are nutritive. The nail may be brittle, chipped at the free border, discoloured, pitted and furrowed, or it may be gradually and painlessly separated from its attachment, either wholly or partially, beginning either at the free or attached border. Sometimes, while separation is going on at one end, re-attachment takes place at the other, and so the fall is avoided, but it is always left furrowed and irregular. Thickening of the nail may also occur, but it is less common than the deficiency in nutrition. The thickening occurs chiefly at the free border, where it is rough and chipped, or ridges may form, but the proximal part of the nail is often unchanged.

Perionychia may begin in three ways. 1. By the extension of a squamous lesion to the matrix; the nail over the affected area scales off, and forms white pits, while the outlying border of skin may get thickened, brittle, and bleed easily from fissures.

2. Inflammation occurs; the skin round becomes swollen and dusky red, but does not go on to suppuration, unless the swelling pressing on the edge of the nail causes ulceration, then the tissue fungates over the nail and gives exit to a fœtid discharge, and the nail itself becomes necrosed and black or otherwise discoloured. Unless exposed to pressure, as in the toe-nail, it is not usually painful.

3. Gummatous infiltration of the matrix has also been recorded.

Children.—Acquired syphilis in children or infants presents much the same symptoms, and runs much the same course as in the adult, except that in very young children, the bones, at the junction of the epiphyses to the shaft, are very likely to be the seat of inflammation. Thus, one of my cases, a child æt. six months, infected by being suckled by a syphilitic woman, not its mother, when three months old, had ophthalmia, dactylitis syphilitica of

* For a more complete account of syphilitic nail affections see Fournier's *Syphilis chez la femme* (1873), p. 467.

both hands, left facial paralysis, and subcutaneous gummata, some of which suppurated. In another, where the child was well, up to nine months old, and then contracted syphilis from its mother, who had been infected by her sailor husband six weeks after her confinement, there was epiphysitis of the lower end of the left humerus, of the right olecranon, and of the heads of both tibiæ, when the child was a year and a half old; it had had a rash all over the body and a sore throat nine months before.

Congenital Syphilis—*i.e.*, the syphilis transmitted by the parents to the fœtus in utero—presents some peculiarities both in the eruptions and other symptoms, but, at the same time, possesses many resemblances or analogies to the acquired form. Unlike phthisis, gout, etc., it is not a mere predisposition that is inherited, so that the manifestations may be in abeyance, until the surroundings or habits of the patient call them out, but the disease itself is transmitted.

Its effects may be shown, by the death and premature expulsion of the fœtus, by live birth with the disease in full activity, in which case, the child seldom survives long, or, what is more common, it may be born comparatively healthy and several weeks elapse before the disease declares itself. Which of these several effects shall be produced—and there are various grades in each class—depends chiefly upon the length of time that has elapsed between the infection of the parents and the birth of the child, and also upon whether they have undergone effectual treatment. Whether the disease can be transmitted by the father alone, the mother remaining unaffected, need not be discussed here, more than to say that in seeking for corroborative evidence from the parents, it is necessary to be aware, that the mother of an undoubtedly syphilitic infant, may display no evidence of the disease herself, either in her history or at the time, though such women, quite late in life, may have some tertiary lesion. With regard to the father, he can transmit the disease to his offspring long after it has ceased to be contagious to others, and though he believes himself to be perfectly well.

The symptoms of congenital syphilis are of two classes: the early, which occur in the first two years of life, and the late, which either commence or persist after that period.

The earliest symptoms nearly always show themselves in the

first three months of life, and are never later than six months,* while in the majority of cases it is within from three to eight weeks. Thus, in two hundred and forty-nine cases collected by Roger,† in seven-eighths the disease appeared before the end of the third month, and in nearly half in the first month; in Kassowitz's hundred and twenty-four cases, none occurred later than three months.

The symptoms that may precede, accompany, or follow the eruptions are very numerous, since any tissue or organ of the body may be affected; but the most common, in the early stage, are those due to inflammations of the mucous membranes of the nose, mouth, and larynx, the pericranium and epiphyseal junction of the long bones, the spleen, liver, and iris. The first symptoms are pallor, peevishness, and pyrexia, soon followed by the well-known and almost characteristic "snuffles," due to inflammatory swelling of the lining membrane of the nose. This obstructs nasal respiration, which may be stopped altogether by the accumulated secretion and so prevent sucking, and will, if the child is not fed at once with a spoon, materially hasten the end. One or more of the eruptions and excoriations, to be presently described, soon follow or occasionally precede the coryza, most of them commencing and becoming worst upon the buttocks; mucous tubercles are seen about the mouth and anus, and rhagades round all the apertures; the child wastes; the skin gets loose and wrinkled; the complexion is of a sallow or *café au lait* tint; the face acquires a curious "old man" expression, as if the cares of this life were already too much for him; the skin is stained by the faded eruptions and disfigured by more recent ones; the hair is scanty, especially at the temples, which, with the eyebrows, are often bare; and if the larynx is affected, the cry is hoarse or even toneless. The spleen is often enlarged, in a quarter of the cases Gee says, and if the enlargement is great, it is often associated with profound anæmia and bone-changes; this combination is more common in the second year, when perhaps all the skin lesions have disappeared; the liver is less frequently and conspicuously enlarged. The changes in the skull are due to thickening of the bone on the one hand, or thinning on the other. The thickenings may be circumscribed or diffuse, the latter being an advanced stage of the former. The circumscribed

* Trousseau puts it at seven months, and Cullerier at a year.

† Quoted by Lancereaux, vol. ii., p. 137, *New Syd. Soc.*

thickenings or bossy enlargements are easily felt and often visible. They are really nodes, which are formed chiefly upon the frontal and parietal bones surrounding the anterior fontanelle, but not reaching up to its edge (natiform thickening of Parrot). The parietal and frontal eminences are the last parts attacked, and, except in advanced cases, are left as islands of healthy, smooth bone surrounded by the vascular, roughened, diseased bone, which seldom reaches quite up to the sutures. These bossy enlargements are easily palpable and often visible. In the diffuse form, which affects the frontal bone chiefly, there may be osteitis as well as periostitis. Cranio-tabes, of which there are all grades, up to the total wasting of the bone substance in some spots, can be felt in the posterior part of the parietal bones, and behind the mastoid process. It is not confined to congenital syphilis, but is very common in that disease. The other form of thinning occurs on the inner surface of the skull, and is only of post-mortem interest. The thinnings and thickenings may be not infrequently seen on the same skull. Nodes may also be seen on the long bones occasionally in infancy, but are more frequent at a later age. The chief affection of the long bone is inflammation at the junction of the epiphysis and diaphysis, which is attended with heat, swelling, tenderness, and pain on movement, so as to produce a pseudo-paralysis. It may be seen at a very early age (one of my cases was only three months), affecting the ulnar, radius, and tibia, but not symmetrically. The so-called "dactylitis syphilitica" is probably of the same nature as this epiphysitis. The cranial changes may also begin very early. In an infant who died at ten days old, after having had a bullous eruption with excoriations, the whole of the skull surface, except the parietal and frontal eminences, was red and roughened.

In the last stage of congenital syphilis, the skin lesions are seldom of importance, and generally absent; lesions of the eye, ear, bones, teeth, and viscera, and occasionally of the nervous system, are those chiefly met with, and since they occur independently of skin eruptions, need not be gone into here. Gummatous infiltration of the skin with ulceration, very similar to that seen in the acquired disease, is to be occasionally observed.

The various symptoms enumerated, of which only the most common have been mentioned, are, of course, not seen all together in one patient; they occur in various combinations, and at various

periods, but may all be present in the first year of life, and most of them within the first three months.

The following skin eruptions are met with :—

An **erythematous rash** or **roseola**, resembling that of acquired syphilis, is rare in infants. In Bassereau's oft-quoted case, a papular syphilitic erythema appeared on the face and then on the body on the third day of life, soon followed by coryza.

Cullerier records its appearance at birth. In a case at Shadwell, æt. two months, the rash had been present one month ; the whole body surface was covered with maculæ half an inch in diameter, brownish-pink in colour, with some scaliness in parts. According to Diday, the abdomen, lower part of the chest, and inner surface of the limbs are the usual positions for the bright, soon becoming coppery-red, irregularly outlined, finger-nail-sized patches, generally associated with ulcers of the mouth and anus.

Another form of erythema, however, is the most common of all the congenital syphilides, consisting of erythematous patches of various sizes, which usually commence on the buttocks and round the anus. They may be well or ill defined at the edge, bright coppery or yellowish-red, tending to coalesce into large sheets of eruption, but generally patchy on the borders. This erythema may extend uniformly on the back and inner side of the legs, quite down to the feet, including the soles, which are bright red and peeling. On the front and outer side, it is still generally patchy ; upwards, it often extends to the loins and abdomen, and in a few cases, all over the body, in patches which coalesce ; the whole surface is then red and desquamating on the dry parts, while on the buttocks, or where it is exposed to moisture, the scales are soaked off and the surface is left raw or brightly glistening. These generalised cases are very likely to die.

Diagnosis.—This eruption is at first liable to be mistaken for intertrigo, but this is never in well-defined patches, does not extend below the parts covered by the napkin, and yields readily to simple measures of protection and cleanliness. In specific erythema, snuffles and other syphilitic symptoms are generally present also. It must be borne in mind, however, that intertrigo is very easily excited in syphilitic children. Mothers often ascribe both these conditions to the " thrush having gone through it," and will admit this, while they will deny that a child has ever had any eruption on its buttocks or elsewhere.

This erythema differs from the exanthem of acquired disease, in the great tendency to coalesce, in being raised above the surface and often well defined, and in the greater tendency to desquamation, even at an early stage.

The next most frequent lesion is **mucous tubercles**. In the early stage, they are generally associated with other lesions of the skin, but are sometimes alone with snuffles, and are often the sole relapsing lesion from the first to the third or fourth year. They are especially common, but not confined to the anus and angles of the mouth, occurring wherever there is warmth and moisture, such as the groins, axillæ, and between the toes; they resemble those seen in the adult, but are more frequent and numerous. Superficial excoriations about the anus and buttocks, generally on the site of an erythematous, squamous, or other lesion, are very common, as are also rhagades at the angles of the various apertures, such as the anus, mouth, nostrils, eye, etc., due to the inelastic and brittle condition of the epidermis of those parts, the result of erythematous and other lesions.

A **papulo-squamous** eruption, corresponding to that of acquired syphilis, is the next most common, consisting of round superficial patches, from one-eighth to half an inch in diameter, very slightly raised above the surface, delicately scaly, with a pink or reddish-brown colour at first, but after a few days of a pale fawn tint. It may be limited to one or more regions, such as the limbs, forehead, or round the mouth, or occupy the whole body surface, usually in discrete patches; it commences upon the buttocks, where superficial ulceration is apt to occur, from the irritation of the urine and fæces. A variety of this is a crescentic squamous eruption with a raised border, which, in one of my cases, began on the buttocks a week after birth, then spread over the thighs, and then all over the body, forming map-like outlines on the skin, most marked over the lower part of the body and legs. A definite circinate scaly eruption, resembling that seen in the acquired form, is also to be observed.

The **small papular** forms are acuminate, convex, or flat. The first two are bright or brownish-red, of extensive or limited distribution, occurring chiefly on the limbs, sometimes in groups of

three to six, sometimes scattered irregularly ; they may be crowned with a scaly cap or with a small head of pus, seldom with a clear vesicle. When the pustular element is the predominating one, it is generally an early manifestation ; in one of my cases, it began on the third day of life, and was associated with small squamous patches of the buttocks and thighs, while the pustular element was most marked on the face. The flat papules are not so common as the others ; they are slightly raised, shining, and angular, or roundish, grouped in irregular patches, but with not much tendency to coalesce, and are very like infantile lichen planus, but their outline is often rounder, the colour is duller in hue, and other evidence of syphilis can generally be found ; *e.g.*, a boy, æt. two months, had snuffles badly, erythema on the buttocks, when three weeks old, still present all over the genitals, and below the knees, while on the shoulders and neck, were flat angular papules like lichen planus ; a few isolated flat patches about a third of an inch square were also present.

Vesicular eruptions are rare in congenital syphilis, and are scarcely ever the first form of eruption. They vary much in character and size; *e.g.*, a boy, æt. four months, had brown discoloured desquamating patches over the legs, arms, and face, slightly on the trunk, ulcerating on the buttocks ; a week later, vesicles appeared singly and in groups, a millet seed in size, with little or no redness at their base ; the following week, they had developed into bullæ from a pea to a hazel nut in size ; the general condition was, however, improving, and in another fortnight he was well.

Pustular eruptions are much more common than the vesicular ; besides the small pustules that sometimes crown papules, already described, there are ecthymatous-looking sores, with a greenish crust concealing the sharp-edged spreading ulcer, or a simple excoriation. They are never very numerous, are associated with other lesions of syphilis, are generally indicative of profound cachexia, and are often the prelude to death ; sometimes, they are the first skin eruptions, but not often. Superficial suppuration is very likely to occur where the parts are frequently moist, such as round the genitals, and the pus from these and other lesions may become inoculable, and so impetigo contagiosa supervenes in an unmistakably syphilitic child.

Another form is described by Barlow, of small cutaneous

abscesses which resemble boils, but have no core. F. Taylor has reported two cases, and I have had several.

Bullous eruptions of pemphigus character are more common in congenital than in acquired syphilis, while rupia is hardly ever seen; Schiff, however, has reported a case in a child æt. eleven months. This so-called "syphilitic pemphigus" generally appears in the first week; the child is often born with it, either dead or alive. The hands and feet, especially the palms and soles, are the almost invariable localities for its onset, and it is often confined to these situations. In addition, the nail bed is frequently attacked, with consequent destruction of the nail, which often turns black; when less severely attacked, it is contracted * at the proximal end, as if pinched up, and spreads out like a fan at the free end. The lower part of the face is the next most common position, while the trunk generally escapes, except in very bad cases; thus in Labat's case,† the child was born with pemphigus all over, except on the palms and soles, which were red and shining; it died in twelve hours. The bullæ are either flaccid or tense, contain pus or blood, with a dusky red areola round them, or they may be on a raised, deep red base. When they rupture or dry up, greenish-yellow or dark green scabs are formed, which conceal an unhealthy-looking, spreading ulcer. The eruption is always an indication of great severity in the disease, and the child seldom lives long, either dying of general cachexia or of diarrhœa, or other intercurrent affection. I have, however, seen one severe case where the eruption was present at birth recover under immediate mercurial treatment. Milder cases, where the contents of the bullæ are clear instead of purulent, have a much better chance; but when Hochsinger speaks of twenty recoveries out of twenty-three cases, this is such a large proportion, and so contrary to general experience, that he must, I think, have included cases of non-specific pemphigus neonatorum.

There is seldom any difficulty in the *diagnosis* from ordinary pemphigus; the nature of the bullæ, their position on the palms and soles, while the trunk is usually free, and the strongly developed cachexia, are enough. Its occurrence in the first week of life distinguishes it from pemphigus vulgaris, but not from the

* Hutchinson on Syphilis, plate viii., p. 416.

† *Progrès Médical*, October 1880.

form described already as occurring in the new-born in lying-in institutions, and in bad hygienic conditions, but in this last, the contents of the bullæ are clear, they appear anywhere, and the children get well rapidly, if removed from their unhealthy surroundings.

Bullæ may, however, occur in connection with syphilis at a later stage, as in the case described with vesicular eruptions; for another example, the following may be related:—

In a child * sixteen days old, bullæ with clear contents from a quarter to one inch in diameter were present on the trunk only; there were snuffles and a depressed nose, but no rash on the buttocks. The history was, that when thirteen days old a dry, scaly eruption appeared round the mouth, followed by the bullæ on the trunk; there had, however, been one on the neck when three days old; the mother had had eight abortions. The child died when a month old.

Nodular eruptions are among the late manifestations of congenital syphilis, but are not common; they present similar appearances to the late lesion in acquired syphilis, but are seldom so extensive. They were so, however, in a woman, æt. twenty-two, admitted into U.C.H., with evidence of congenital syphilis in the eyes and teeth, as well as in her skin and in her past history. The patient had suffered from nodular infiltration and ulceration for four years, and there were numerous scars about her, extensive serpiginously ulcerating patches, situated all over the right scapula, the upper third of the right arm, and the upper surface of the left breast, and numerous convex, hazel-nut-sized nodules were scattered over the upper part of the body. These gummatous infiltrations are almost the only skin lesions in late congenital syphilis, but Smirnoff records two cases of leucoderma in women æt. twenty-three and thirty-three respectively, which he ascribed to their having had hereditary syphilis.

The *prognosis* in congenital syphilis is bad in proportion to the number, severity, and general distribution of the lesions; it is bad also when they appear at or soon after birth, or if they affect the nutrition of the child. In cases occurring later than the first month, if the nutrition is good, treatment is almost always successful, though in a few cases, after all the skin and

* U.C.H., Out-patient, No. 575, 1880.

other troubles have apparently disappeared, the child, without apparent cause, becomes marasmic and dies. Treatment should always be energetically carried out to the end, as the most desperate-looking cases are often saved.

Treatment.—In spite of the most assiduous study by a host of trained observers, almost unlimited opportunities for the trial of any method of treatment, the ready response in most instances of any lesion present to the treatment suitable for it, and finally the general acknowledgment that practically there are only two drugs that exercise a decided and unmistakable influence on the manifestations of the disease, it is strange how little agreement exists as to the details of treatment, either as regards the special preparations of the so-called specifics, the best time to commence them, how long they should be continued, the best mode of administration, when one and when the other drug should be given, whether they should be given together or apart, simultaneously or alternately. All that can be done in this work is to set forth briefly the different modes of treatment chiefly in vogue, and to point out their limitations and indications according to the author's judgment and experience.

It is not necessary to go into the treatment of the primary sore in this work. The first question to be considered is, whether specific treatment should be commenced as soon as the indurated chancre comes under notice, as is recommended by the majority of French authorities, or to follow the German school, and wait for the appearance of secondary manifestations. Hutchinson is a strong advocate for the abortive treatment, and asserts that by the early and continuous use of mercury in a mild form, generally one grain of grey powder, three times a day, for from six to twelve months, it is possible to suppress the secondary stage altogether, the few exceptions being chiefly those who were intolerant of the drug, and in them, the symptoms take a mild form. Few, I think, can claim such an almost uniformly happy experience as this, one of the chief objections to the abortive treatment being, that it has so little influence in preventing secondary manifestations, and that by depressing the health of the patient, it renders him less liable to resist the secondary effects. There are several arguments against this; but without possessing the complete confidence of Hutchinson, my own practice would be that, if there is an undoubtedly indurated chancre, a mild course of mercury

should be commenced at once; but, if there is any doubt of its being a sore which will lead to constitutional infection, that little harm will accrue by waiting for further development; while if specific treatment be adopted, and no symptoms follow, the patient may have been needlessly subjected to a trying treatment, and his life may be embittered, by his erroneously believing himself to have had a disease, so often dire in its effects on himself and others.

Every one knows that mercury and iodide of potassium are the backbone of the treatment for syphilis. Other drugs, chiefly diaphoretics or diuretics, such as guaiacum, sarsaparilla, Zittmann's decoctions, of which sarsaparilla * is the main ingredient, Tayuya, Dade's bamboo extract, erythroxylon coca, sulphur, and iodoform have had an ephemeral reputation, and, though sometimes useful as adjuncts, are quite unreliable by themselves. The problem is not, however, so simple as it seems; few diseases require more judgment and experience, in order to secure the best results with the drugs, and, at the same time, to avoid or minimise the injurious effects which their injudicious employment will certainly produce, or which are due to a special sensitiveness to them on the part of the patient. While, therefore, the aim must be to thoroughly antagonise and overcome the syphilitic virus, and remove the various lesions it produces, as they arise, by the internal and external administration of these valuable remedies, the absolute necessity of keeping or raising the vital power of the patient to its highest capacity, must ever be borne in mind. In the presence of conditions, depressing both the mind and body of the patient, mercury and iodides are often powerless, while, if mercury be given so as to get its depressing effects, mild lesions are often converted into severe ones, a papule becoming a pustule, or a nodule breaking down into an ulcer, and fresh lesions appear.

Mercury may be administered by the mouth or by the skin; if through the latter, it may be given by inunction, by calomel vapour-baths, corrosive sublimate water-baths, or by hypodermic injection. Corrosive sublimate baths, in the proportion of two grains to the

* Calomel and sulphuret of antimony are also added, but as they are insoluble salts and the supernatant fluid is poured off clear, there cannot be much mercury in the clear decoction. The remedy, however, still has a wide reputation in Germany. For its exact composition, see Mixtures, F. 27, among the formulæ at the end.

gallon, have been recommended for congenital syphilis, but there are better methods than this. Hypodermic, or rather injections deep into the muscles, were strongly recommended by Lewin first, and latterly by many Continental authorities, and by Astley Bloxam * in this country. The buttock, where the gluteus is thickest, is the part generally selected, the trapezius, two inches above the superior angle of the scapula, being the next best place. The needle, which should be carefully sterilised in alcohol, should be plunged deeply into the muscle, and the injections should seldom be given oftener than once a week. Various preparations have their advocates. They may be divided into soluble preparations, such as the perchloride, peptonate, and bicyanide; the insoluble, such as calomel, the yellow oxide, or Lang's grey oil; and various antiseptic combinations, such as the salicylate, the succinimide, the benzoate, the oxyphenate, alanin mercury, etc. Those chiefly employed are the perchloride, the yellow oxide, and Lang's grey oil. The perchloride, as originally recommended by Lewin, was dissolved in distilled water; but instead of injecting gr. $\frac{1}{10}$ to gr. $\frac{3}{8}$ daily, Bloxam makes a solution of gr. 6 to the ℥j, and injects gr. $\frac{1}{3}$ once a week. The yellow oxide is given suspended in gum-arabic water, gr. 16 of the yellow oxide, gr. 20 of gum arabic, and distilled water ℥j. Some prefer vaseline oil, but the gum solution is the least injurious. One grain is the usual dose. Lang's grey oil is made with vaseline. The parasiticide combinations have no real advantage, the effect being in proportion to the mercury contained in the salt.

The symptoms, no doubt, often yield very rapidly to this method, but its actual curative effects are not superior, relapses being just as frequent and severe, and indeed even more frequent, as the injections are seldom tolerated long enough to prevent their occurrence. Besides necessitating frequent medical attendance, in spite of the denials of those who advocate them, the injections are very painful, and liable to produce inflammation, induration, or abscess, at the site of puncture; indeed, I would recommend any medical man, who contemplates subjecting his patient to this method of treatment, to administer one or two injections to himself, and then follow the golden rule. They are also not altogether free from danger. Runeberg reports a fatal result from the injection of one-grain doses of calomel, Kaposi had a fatal case from Lang's

* *Lancet*, August 21st, 1886.

grey oil, and Hallopeau a case of frightful stomatitis; fat emboli in the lungs are also on record. These serious effects may, no doubt, be obviated in all but a very few hypersensitive persons, by sufficiently prolonging the interval between the injections, and using only a small dose, not more than gr. ½ to gr. 1 of the yellow oxide, for instance; but there are still some minor inconveniences. It may, however, certainly find a place in eye or severe throat lesions, in which it is important to get the patient rapidly under mercury. Of the other three plans, its administration by the mouth is, as a rule, the most practicable and convenient; but inunction and calomel vapour-baths are very valuable means under some circumstances. The forms most employed by the mouth are hydrarg. c. cretâ and pil. hydrargyri for the milder, and calomel, the perchloride, the green and red iodides, and the bicyanide for the stronger preparations. Inasmuch as it is desirable that the patient should be kept more or less under the influence of mercury from one to two years, and sometimes longer, I prefer the mild preparations which are efficient, and at the same time less likely to produce irritation of the alimentary canal, with griping and purging. One to three grains of grey powder, or blue pill, are given three times a day, when necessary, guarded with two or three grains of Dover's powder, and continued till the eruptions or other symptoms are gone, and the patient begins to show evidence of the constitutional effects of the drug, such as slight salivation or tenderness of the gums; the dose or frequency is then reduced, until the patient can just tolerate its influence without unpleasant effects. Frequent brushing of the teeth, and rinsing the mouth with alum and chlorate or permanganate of potash solution, should always be enjoined, and the patient should smoke very little, or not at all. About every six weeks, a week or ten days' course of iodide of potassium, in three to five grain doses, three times a day, may be substituted for the mercury, in order to bring back into the system, in an active condition, the mercury which had become inert in the tissues. If, at the end of six months, the patient has been free from symptoms for two or three months, he might wait a month, go to the seaside or other invigorating climate, and then have another six weeks of mercury only. In this way a year may be spent, and if he still remains free, then he may have a six weeks' rest and a six weeks' mild course of mercury, to be followed by a week or two of iodide of potassium, and so on through another

year; if still free, he might leave off treatment, watching carefully for any relapse, which must be the signal for the immediate resumption of mercury. All through the course, the patient should guard against exposure to chills by wearing flannel next the skin, etc., keeping regular and early hours, avoiding sexual congress for his own and others' sake, and other excesses of all kinds, taking moderate exercise, and spending as much time in the country, or sea-air, as his circumstances permit. His diet should be generous, but digestible, and as for alcohol, the less the better as a rule, though claret and the lighter wines may be permitted sometimes.

The green iodide, calomel and opium, etc., are preferred by many; they are valuable when it is important to get the patient under the influence of mercury in a short time, as in threatened iritis, when gr. $\frac{1}{2}$ to gr. 1 of the green iodide, or calomel gr. 2, pulv. opii. gr. $\frac{1}{4}$, may be given every four hours. Otherwise, I prefer the mild preparations, as the green iodide is so liable to produce irritation of the alimentary canal, in consequence of which the drug may have to be suspended for a while, and valuable time is lost, besides that such irritation is more readily again excited, after it has once occurred.

In the tertiary or relapsing stage, mercury is often required, but it must be given in small doses, and generally with tonics; the perchloride gr. $\frac{1}{32}$ to gr. $\frac{1}{16}$, combined with three to five grains of iodide of potassium, forming the red iodide of mercury, which is dissolved by the excess of iodide of potassium, is one of the favourite combinations; it may be given with any bitter tonic except cinchona. Reduced iron, grey powder, and chamomile extract, a grain of each, is also a good combination. Tilbury Fox frequently gave the bicyanide, gr. $\frac{1}{30}$ and upwards, in similar circumstances; it has the advantage of being prescribed in the form of a pill, without decomposition, which is not the case with the perchloride, without special precautions. Only in visceral syphilis, with threatening symptoms, are the more vigorous methods of giving mercury required.

Where there is opportunity for calomel vapour-baths, they are extremely valuable in the early stage, especially where there are extensive eruptions, as the patient has both the external and internal beneficial application of this drug. The mode of administration is given among the formulæ (Baths, F. 4). They are most

suitable for robust patients before they are broken down by the disease, and may be given daily, or every other day, watching their effect, and stopping them at once, if they are depressing the patient, as they are liable to do. Where they cannot be taken daily, it may be advisable, at first, to give some mild preparation by the mouth also. Inunction of ung. hydrarg. is another most valuable method, especially where mercury cannot be given by the mouth; in congenital syphilis, it is almost universally employed, but for adults is not used so much here as it is on the Continent, where, in conjunction with baths, or Zittmann's decoctions, it is the chief method employed. The Aix-la-Chapelle method is a celebrated cure, founded on this plan; it also, is explained in the Appendix. A piece of ointment, the size of a hazel nut, should be thoroughly rubbed in daily, where the skin is thin, such as inside the thighs and arms, the flanks, etc., changing the site of inunction frequently, to prevent local irritation, or the so-called mercurial eczema being excited, and frequent baths are necessary, to place the skin in a favourable condition for absorption. The chief objection to it is, that it is a very dirty plan, requires the patient to give himself up to treatment, which many cannot do, and is difficult to carry out without exciting the suspicion of the patient's friends as to the nature of his malady; patients also can seldom carry it out efficiently for themselves, and it is expensive, and not devoid of risk of mercurialism to the rubber. One great advantage is, that damage to the digestive organs, which so often ensues from mercury given internally, is quite avoided. In whatever way mercury is administered, great care should be taken to avoid severe salivation; when large doses are being given, the patient should be seen daily, and with smaller doses—until his tolerance, or intolerance, has been ascertained—he should be seen two or three times a week; at the same time, it is often necessary to push the drug up to the point of tenderness of the gums or slight salivation. If from idiosyncrasy, or other cause, salivation occurs, the bowels should be freely opened with saline aperients, the mouth frequently washed out with chlorate of soda or potash gargles, and the soda salt taken internally in ten or twenty-grain doses, and some give even larger doses. Iodide of potassium must not be given at first, for though it eliminates the mercury, it brings what was inert and deposited in the tissues back into the circulation, and may thus aggravate the salivation to a dangerous degree.

Iodide of potassium, sodium, or ammonium have all their advocates, but the potash salt is the one chiefly employed, on account of its great diffusibility, and is the salt referred to unless otherwise stated. It is useful in all stages, but in the secondary period is used by me only to wash the insoluble albuminate of mercury out of the tissues; many believe, however, that it is really curative.

In the tertiary period, it is most valuable, on account of its wonderful capacity for procuring the disintegration and absorption of gummatous growths or infiltrations, wherever they may be situated. In the early stage, three to five grains may be sufficient, in the later, five to ten grains are enough for most cases, but some people require larger doses before any effect is seen, twenty, thirty, or even sixty grains freely diluted, three times a day, being given with benefit; but it is always wiser to begin with a moderate dose, and increase it as far as may be necessary. Some patients, on the other hand, are very sensitive to its action, a few grains exciting severe headache, coryza, etc., so that the patients think the remedy worse than the disease; such patients may, however, be taught tolerance by beginning with one-eighth of a grain, and increasing by similar increments daily until a grain is attained to, and then adding a quarter of a grain to each dose till three to five grains are reached.

It is usually preferable to prescribe it with bitter tonics, such as gentian, calumba, etc., and give it after food, to prevent disturbance of digestion. Carbonate of ammonia or sal-volatile is often prescribed with the idea that the action of the iodide is thereby increased and its tendency to produce coryza diminished. I have, however, never seen any reason to believe that it does one or the other, but there is no harm in adding it. Bumstead says that the chloride of ammonium increases the action of the iodide if given in equal quantities, but it is a very nauseous salt. Belladonna and nux vomica are also said to prevent coryza, but their efficacy is not very great. In some people, its prolonged use produces gout, probably by setting up catarrh of the alimentary canal. I have sometimes found it necessary to prescribe a small dose of bicarbonate or citrate of potash with the iodide in such cases. The diminution in sexual power and appetite, produced by prolonged administration, can generally be overcome by general and local tonics after the omission of the iodide. The prevention and treatment of iodide eruptions are discussed elsewhere.

It should always be borne in mind, that while the iodides act in the most gratifying manner in healing ulcers, removing infiltrations and gummata, relieving pain or sleeplessness, etc., their effect seems to be exerted locally on the diseased products, while it has little or no power over the virus itself, so that the symptoms are only too apt to return sooner or later, when the iodide has ceased to be given; in other words, the disease is scotched, not killed, by iodine. Mercury, and mercury alone, aided by time and good hygiene, has any real curative influence.

The iodides of sodium and ammonium are preferable sometimes where large doses are required, as in large doses, potash salts are very depressing to the heart; the ammonium salt should always be prescribed with carbonate of ammonia to prevent its too ready decomposition. Although they contain more iodine in proportion, on account of their different atomic weights, in other respects, on the whole, they are less efficacious.

A general tonic treatment is frequently necessary at all stages of the disease. Sometimes iron may be combined with the specifics, *e.g.*, the syrup of the iodide of iron; cod-liver oil, with or without iodine, is also often necessary. Sometimes it is best to suspend the specifics and give the mineral acids and nux vomica or cinchona, quinine and iron, etc. It is instructive, sometimes, to notice how, when specifics fail to exert their wonted influence, after a course of tonics, a sojourn at the seaside or in the country, or careful feeding up of a badly nourished patient, the mercury or iodide again becomes efficacious.

The *local* treatment of syphilides, though frequently unnecessary, generally hastens their disappearance, and may be essential to effect it. When they are extensive, the calomel vapour-baths, already described, are the best means of getting at them. For the superficially ulcerated throat, a perchloride of mercury gargle two to four grains to ℥viij of distilled water, used three or four times a day, soon produces improvement; or calomel may be applied by local volatilisation, or, what is quite as good, and simpler, by connecting a glass tube containing the calomel to an indiarubber ball and puffing it on. Mucous tubercles also soon yield to the local application of calomel, or a slight application of the stick of nitrate of silver sometimes hastens their departure, as well as that of superficial ulcerations, but it should be only sparingly resorted to. The parts should be washed two or three times a day with

a 1 to 1,000 corrosive sublimate solution, and the adjacent surfaces separated by absorbent or iodoform wool. Ulcerations, whether secondary or tertiary, may be cleaned up and healed, by dusting on iodoform or iodol two or three times a week, and using black or yellow wash on lint cut to the size of the sore, and covered with oiled silk. When, as in rupia, they are too numerous, or in awkward positions to keep on dressings, iodide of starch paste, recently made and painted on, generally induces them to heal in a kindly way. Yellow oxide of mercury ointment, ten or twenty grains to the ℥j of lard, is also a good application. Nodules or infiltrations of the skin, whether secondary or tertiary, may be treated by rubbing in gently, unguentum hydrargyri, either pure, or diluted if there is much hyperæmia. Oleate of mercury 2 to 10 per cent. is more cleanly than the ung. hydrarg.; the mercurous salt is the more efficacious, and should be made by chemical combination. Hypodermic injection of one or two grains of iodide of potassium, in a dilute watery solution beneath the lesion, acts very rapidly, but is rather painful.

Eruptions on the face are a great trouble to the patient; for these the weaker preparations of mercury are generally preferable, the ammoniated mercury ointment twenty grains to the ounce, the oleate of mercury 1 or 2 per cent., and sometimes at night, the diluted nitrate or ung. hydrarg. When there is much hyperæmia, it is often desirable to commence with ordinary astringents, such as calamine lotion, as in such cases, the mercurials may be too stimulating at first. Rhagades at the mouth or nostrils yield to painting with hyd. oxid. flav. gr. 10 to adipis ℥j, or to the calomel cream of the Lock Hospital, calomel ℥j, oleum olivæ ℥ij.

The obstinate palmar and plantar syphilides of the tertiary stage become amenable to treatment, if the thickened epidermis be first removed; it may be done by rubbing it down with pumice stone, a corn rubber, or glass paper, or by the application for several days of Unna's salicylic plaster; ung. hydrarg. should be subsequently rubbed in. Some use potash lotions for the same purpose, but if there are any fissures, it is very painful. On the soles, where the horny cuticle is often very thick, it may be first shaved down with a razor, but without this preliminary the treatment is very unsatisfactory. The fissures, ulcers, white patches (leucoplakia), etc., of the tongue often give great trouble in the relapsing period. All sources of irritation, such as smoking,

the use of condiments, etc., should be interdicted, and irregular or tartar-covered teeth removed. The mouth should be washed out with weak Condy's fluid when the teeth are cleaned, which should be not less than twice a day, and then a 2 or 3 per cent. solution of chromic acid should be painted on daily; this generally gives great relief, and is not very disagreeable. Less pleasant, but useful in obstinate cases, is a 1 to 3 per cent. perchloride of mercury solution, but the brush must not be dipped directly into the bottle, or the solution soon gets inert. In severe cases, Hutchinson's plan of painting on the strong acid nitrate of mercury, though painful at the time, will give relief for a month or two, and does not require to be used more than once in three months.

In tertiary syphilis, the large part played by local irritation in producing the lesions must be borne in mind, and as far as possible means must be adopted to prevent such irritation.

In congenital syphilis, inunction of ung. hydrarg. is generally the best method; a piece of ointment the size of the end of the finger should be rubbed on the flannel binder daily, and the child's movements work it in, the position for its application being changed from time to time, to prevent local irritation. This treatment may be continued until all symptoms have disappeared, and for a month or two longer, but with diminished quantity; cod-liver oil, with or without maltine, and steel wine or other form of iron, are often necessary adjuncts. After the mercury has been left off, syrup of the iodide of iron is a suitable tonic. The child should be kept under observation for at least twelve months. Where there is much skin eruption, the ointment cannot always be applied, and then a grain of hydrarg. c. cretâ can be given three times a day to the youngest infant, and if, after some time, diarrhœa is produced, some pulv. cretæ comp. may be given with it, but this is seldom necessary. The erythema of the buttocks is best treated by dusting on ʒss to ʒj of calomel to ℥j of starch powder. To the condylomata or mucous tubercles, a little pure calomel may be applied, paying great attention to cleanliness, and keeping the parts as dry as possible; changing wet napkins at once, is of course necessary. The nostrils must be frequently cleared out, and if the child cannot suck well, it should be fed with a spoon without delay. Careful attention to hygiene in every way is highly important. Except in the way already indicated, local

treatment is seldom required for the skin lesions, the effect of the internal administration of mercury being almost magical in the majority of cases, unless treatment has been too long delayed, so that the nutrition has already suffered considerably; indeed, as a rule, the prognosis is good or bad in proportion to the nutrition of the child when it first comes under treatment.

LEPRA.*

Deriv.—λέπρα, leprosy.

Synonyms.—Leprosy; Elephantiasis græcorum; Leontiasis; Satyriasis. *Fr.*, La lèpre; *Gr.*, Der Aussatz; *Norweg.*, Spedalskhed.

Definition.—An endemic, chronic, constitutional disease analogous to syphilis, and varying in its morbid manifestations, according to whether the brunt of the disease falls on the skin, nerves, or other tissues.

Leprosy has ceased to be one of the diseases of England since the sixteenth century, and is now met with here only as an importation; but it is still rife in Norway, and to a less extent on the shores of the Baltic, and of late years in Lithuania, in the south of France and Spain, and it is frequent in the northern littoral of the Mediterranean, Turkey, and some other parts of Europe. Many instances of its different forms have come under my care at various times, but it is only from those who have long studied the disease in its native haunts—such as Danielssen and Boeck in Norway, Vandyke Carter in India, and Hillis and Beaven Rake in the West Indies—that we can glean a complete account of its numerous manifestations, and in the following description I have followed those writers, especially Hillis, pointing out where my experience differs from theirs.

The disease occurs in three forms—the tuberculated, the non-tuberculated or anæsthetic, and the mixed tuberculated. The

* *Literature.*—Danielssen and Boeck, *Traité de la Spedalskhed* (Paris: 1848. French translation). Vandyke Carter on Leprosy and Elephantiasis (1874). Hillis, *Leprosy in British Guiana* (1881). Leloir, *Traité de la lèpre* (Paris: 1886). Thin, *Leprosy* (1891), a *résumé* in 280 pages. The Journal of the Leprosy Committee.

tuberculated is the most common in Europe, the non-tuberculated in the tropics, and the mixed tuberculated is nearly always less common than either of the others. Although they form a pathological unity, these varieties are so distinct clinically, as to require separate description. In the tuberculated form, the brunt of the disease falls upon the skin, in the non-tuberculated, on the nerve trunks, and in the mixed, on both.

Tuberculated or Nodular Lepra constitutes over 50 per cent. (Kaurin says 70 per cent.) of the cases in Norway, about 20 per cent. in the West Indies, and not more than 10 per cent. in the East Indies. No less than five stages may be recognised: first, deposit with prodromata and fever; second, eruption; third, tuberculation; fourth, anæsthesia (not constant); fifth, ulceration. The prodromata which nearly always attend the onset are of the following kind: debility, depression, dyspepsia, diarrhœa and drowsiness, listlessness, a frequent sense of chilliness, especially at night, profuse perspirations and marked vertigo, temporarily relieved by recurrent epistaxis. Then, perhaps, after a chill or other depressing influence the febrile symptoms set in.

Their onset is marked by a rigor, and a temperature which may rise to 104°. The pyrexia is of a remittent or rarely of a continuous type, and is often mistaken for ague; the drowsiness and sweating become more marked, the patient feels restless, the tongue is red, the pupils sluggish, and the pulse quick and feeble. These febrile symptoms may set in abruptly without any prodromata, it may be, several months or even years after exposure to the leprous influence. After they have lasted for a variable period of days, weeks, or months, the exanthem or "leprous spot" appears, coming first with œdema of the eyelids, on the prominent parts of the face and ears, and then on the limbs, occupying the front of the forearms and the outside of the thighs. The eruption is of an erythematous character, varying from a bright to a purplish or mahogany red tint in fair people, and there is leprous deposit, not mere hyperæmia, from the first. It is in well-defined, shiny, slightly raised patches, of from one to several inches in diameter, and distinctly hyperæsthetic; these patches may fade to an orange tint or altogether disappear and reappear after an interval, each time with febrile symptoms, and this may go on for weeks or months before the next stage of tuberculation sets in, or they

may be persistent, becoming more conspicuous if the patient gets warm.*

In a young lady æt. fourteen, they were very bright, and the forehead and chin were something like an erythema nodosum in the wrong place, but they had been out several months. The disease began with symptoms supposed to be due to rheumatic fever seven years after she left Ceylon, she having been quite well in the interval. On the other hand, there may be a total absence of general symptoms, not only when the skin eruptions are of very slow development, but even when the eruption comes out somewhat acutely. Thus, in a boy of seven from British Guiana, who had been perfectly well until six weeks before I saw him, a red patch came out on the left cheek one inch across, then the right ear became red and swollen and shapeless, and other lesions appeared in various parts of the trunk and limbs. The boy had not been, and was not when I saw him, unwell in any way whatever, and was bright and lively. I have seen diffuse erythema over the face and greater part of the body.

After the first, or one of the subsequent exanthematous attacks subsides, the eruption fades, crops of minute pink elevations, grouped or scattered, appear on the site of the previous rash, the papules enlarge to the size of a split pea, and form yellowish brown nodules, and some of these may enlarge much more, even to the size of a hen's egg, or they may gradually coalesce into a diffuse infiltration, or the infiltrations may be produced directly, by the erythematous patch thickening instead of resolving, and may thus form regular plateaux of large size, and, like the nodules, of yellowish to dark brown colour. In fair races, when the disease is of moderate severity, ovals or circles with broad borders and clear white centres may arise, and fresh nodules may also develop on the infiltrations. As a rule, tuberculation does not develop until from three to six months after the commencement of the disease; as the nodules and infiltrations become fully developed, the

* Francis S., æt. fourteen, U.C.H., born of healthy Scotch parents in the West Indies; while there he had repeated attacks of what were considered to be erysipelas of the right leg going on for seven years, and it was not until he had been six months in England that tuberculation set in, after a severe rigor and febrile symptoms of a few days' duration, but with no erythematous eruption, the first nodules appearing on the site of a recent burn on the heel. The subsequent course was very much the same as above described.

hyperæsthesia subsides, and may be replaced by diminished sensibility or even complete anæsthesia, if the infiltration is considerable, simply from pressure of the leprous material on the peripheral ends of the nerves. Nodules may come anywhere, but they are most common on the face, limbs, breasts, scrotum and penis, round the arms and in the axillæ, but are rare on the back, neck, soles and palms, and still more so on the elbows and knees, while they are said never to occur on the scalp* and glans penis. The mucous membranes also get involved, including those of the eyes, nose, mouth and tongue, larynx, trachea and large bronchi, uterus and vagina. The fate of the nodules and infiltrations varies; some resolve and leave only stains, others atrophy, but leave atrophic scarring, while others again soften, break down, and ulcerate, forming indolent, sharply defined, red-glazed sores with yellow "glairy mucous discharge of peculiar odour," which at first can be healed with appropriate treatment, but not as the disease becomes advanced. When the disease is fully developed, the face gets the characteristic leonine appearance from the thickening of the skin between the natural wrinkles of the forehead, which thus appear deepened, and give a stern and aged look even to children; the cheeks, unless the nodules remain discrete, look enormously puffed out and pendulous, and the skin is very soft and velvety; the lips are swollen and everted, and with the nose and chin are covered with nodules; the ears project conspicuously, are often, even at an early stage, much thickened and covered with nodules, and the lobe especially is very large, soft, and pendulous, and may be the only part of the ear attacked; the hair is preserved on the scalp, but is lost elsewhere; the nails are thin and papery, split, flake, and drop off, sometimes to be renewed in the shape of horny pegs, but they may recover completely. In males, the testicles atrophy, the breasts enlarge, and sexual power is lost; women become sterile, the voice gets croaking from nodules in the larynx, there is snuffling from thickening of the nasal mucous membrane, a kind of pannus may ensue on the conjunctiva and cornea, and interstitial keratitis and corneal nodules may lead to blindness.†

* In John C. N., U.C.H., a mixed case, there were a few nodules on the scalp; in Evan S., U.C.H., there were one or two on the palms.

† For a full account of the eye changes, see Bull and Hansen, *The Leprous Diseases of the Eye* (translation, with coloured plates, published in London, 1873), and *Leprosy as a Cause of Blindness*, C. F. Pollock (Churchill: 1889).

From time to time, exacerbations occur, with enlargement of the lymphatic glands, especially the femoral, and febrile symptoms of the same character as before; and after each attack, fresh nodules are formed. These attacks occur about four times a year, at the change of the seasons, in the tropics (Hillis), but less frequently in colder climates, and are the milestones on the downward road. Ulceration eventually sets in, at first only in single nodules and spreading slowly, but sometimes it is phagedenic and rapid, and in either case, enormous areas may get involved, and lead to the death of the patient by exhaustion, or death may ensue from interference with the air passages or from other internal deposits. Forty per cent. perish from the direct effects of leprosy, while another forty per cent. die from renal and lung complications, and the rest from diarrhœa, anæmia, etc. The mutilations of the non-tuberculated form, are never present in this.

In the dark races, the "leprous spot" is a bright red, the sweatings are accompanied with oiliness, and the skin is always very greasy, with dilated sebaceous openings. The nodules at first are translucent and quite solid, but eventually get blacker even than the black skin that they are on. The surface is very scaly, sometimes so much so, as to mask the disease. In advanced cases, Hillis describes a peculiar mottling, like a richly grained wood on the belly, and mapping out the spinal cord behind.

In children, small nodules come comparatively early, on the alæ nasi and lips.

When there is an hereditary taint, Hillis has observed "that sores or abrasions become indolent and unhealthy, general diseases are less amenable to treatment, and in the black races, the skin is scaly, shiny, and variegated, the lymphatic glands are enlarged, and the patient has a cachectic look, the features are coarse and unsymmetrical, the head looks too large for the body, the functions are imperfectly performed, and the skin has a peculiar soapy feel, while mentally the patients are dull, listless, and apathetic."

The disease comes out in such cases before they are twenty, generally from ten to twenty, but rarely under three years of age, very few, if any, under twelve months, and there are only one or two more than doubtful instances on record of the infant being born with it. The absence of congenital cases will be discussed under heredity. But Danielssen and Boeck record that the parents

of some affected children have stated, that they were born with bluish spots, on which nodules subsequently developed.

Non-tuberculated Lepra is the most common tropical form, constituting two-thirds, while in Norway it is only one-third, of all the cases.

Three stages may be recognised in the course of the disease :— (1) that of development ; (2) of spreading ; and (3) of permanency. The first lasts one or two years, and includes the prodromata, the eruption, and the commencement of atrophy. The prodromata differ much from those of the tuberculated form. Febrile symptoms are absent, but a frequent sense of chilliness, especially towards evening, is experienced ; malaise, and perhaps gastric and circulatory disturbances, may be present. But the most characteristic symptoms are pain and tenderness in various places, a general hyperæsthesia of the skin, and shooting lancinating pains, compared to electric shocks, which traverse certain nerves, especially the ulnar, the median, the peroneal, and the saphenous, accompanied by a burning sensation, and tenderness along their course.* In a gentleman æt. thirty-two, from Jamaica, the symptom, four years before, was intense itching between the toes, and soon after brown spots appeared on the leg. In the same way, the involvement of other nerves was marked by severe itching, followed by numbness, but he never had pain, but had felt pricking and "pins and needles" down the limb when the peroneal or ulnar nerves were tapped. Drowsiness, lassitude, and depression were the only general symptoms. Weakness of grasp and numbness in the course of the nerve

* In the case of a boy, J. H., E.L.H., the symptoms began at the age of four years, in Suffolk, apparently with an attack of ague, eight months after his leaving Singapore. The eruption preceded by a very short interval the nerve symptoms, which commenced with numbness and weakness of grasp ; but there were no pains nor early bullous eruption, and in about twelve months his ulnar nerves were completely paralysed, and the median partially. Subsequently complete paralysis of the hands developed, and the fingers were clawed. Bullæ came in cold weather, and the characteristic, peripherally spreading eruption appeared, preceded by an erythematous exanthem ; but there was only diminution of sensibility in the atrophic area. In this case, the ulnar nerves, which were much thickened, were stretched without effect. He was under observation for six years, and died, æt. thirteen, in the hospital with pyæmia and ulcerative endocarditis ; but this did not appear to be dependent upon the leprosy, as he had been exposed to septic influences.

are early symptoms, and the ulnar is generally the first to suffer, the peroneal being the next commonest. There may be loss of sensation to pain, touch, heat, and cold, or tactile sensation may be preserved, and heat, cold, and pain lost, as in syringomyelia, which may be simulated, or perhaps produced. According to Susuki, the tendon reflexes are exaggerated in anæsthetic leprosy. Numerous small bullæ often develop on the fingers and toes in association with the shooting pains, and occasionally the condition known as "glossy skin" may supervene with the characteristic burning pain.

Within a year, the more special eruption breaks out, the most frequent positions being the back, shoulders, back of the arms, nails, thighs, round the knees and elbows, on the face and sometimes in the course of nerves, especially the musculo-spiral. The spots or patches come out singly as a rule, are one or two inches in diameter, well defined, but not raised, and of a pale yellow colour. They may itch or burn, but are not hyperæsthetic and rarely anæsthetic at this stage; but the sweat secretion is absent in them. Fresh patches continue to come out from time to time, but unattended with special symptoms. Sometimes some of the muscles waste, and there is contraction of the little finger, while sensation in the course of the affected nerve is diminished by this time if it has not been before, and thus the second, or spreading-stage, is reached in a year or two from the commencement.

With the exception of those on the neck, the patches spread peripherally, clearing in the centre and forming irregular ovals or circles, or, meeting with others, enclose large, gyrately margined tracts. The border is now distinctly raised, hypersensitive, from an eighth to half an inch across, of a yellowish-brown colour, and made up of closely aggregated papules which have coalesced more or less, or there may be minute vesicles on them at the edges. The centre is atrophic, preternaturally white, thin, wrinkled, hairless, scar-like, and dry from the destruction of sweat glands, and hence, later on, a powdery desquamation is observed.

Anæsthesia is nearly always present in the atrophic patches as well as in the course of the affected nerves, and slowly extends its area; as a consequence, the patient often gets burns and other injuries unconsciously, and perforating ulcer of the foot, starting from a slight injury, may ensue, but it is most common in those

who walk barefoot. Another result of the paralysis of the nerve function is the formation of solitary, large bullæ on the extremities. They arise mostly in cold weather, or from some local injury, and leave a very indolent ulcer. They differ from the early bullæ, therefore, in size, number, and cause, the early ones being due to an irritative, the late, consequent on a paralytic condition of the nerve. Fissures of the heel are also common. The diseased nerves can be felt to be thickened, especially the ulnar at the elbow.*

Paralysis is usually a late symptom, and produces flexion of the second and third phalangeal joints, but the first remain straight, much wasting of the muscles and wrist drop ensue, and the nail nutrition is damaged so that they become like talons; next interstitial absorption takes place, leaving the nail still attached to the stump, or a larger necrosis may occur. Sleeplessness is sometimes a trying symptom, but otherwise the general health suffers comparatively little, and much of the lost strength may be regained for some time when the permanent stage is reached, which is generally in about ten years.

The eruption now remains stationary, though by this time nearly all the body surface may have been traversed by it, so that the whole skin is atrophied and white. Other nerves, such as the third and seventh, may be paralysed, and ectropion and the other consequences of these paralyses ensue, or some muscles of the leg may be paralysed.

Ulcerations are common, but less extensive than in the tuberculated cases, though they are often deeper, either from moist or dry gangrene, which spreads until it reaches a joint; a line of demarcation is then formed, and nature performs amputation, often very neatly. Although this may be repeated from time to time, the process is slow and not extensive on each occasion, so that the patient's strength is wonderfully preserved, and the sexual power is retained up to a very late period. Ultimately, however, the constitution is undermined, and he succumbs from various causes.

Death occurs in two-fifths of the cases from the direct effects of leprosy, such as ulceration, gangrene, marasmus, or general debility, induced by the leprosy poison. Muco-enteritis accounts for nearly as many, and the rest die from various complications, but nephritis is not a special cause as in the tuberculated form, and probably

* See J. H.'s case, in previous note.

the muco-enteritis is largely climatic. Cases usually last from ten to fifteen years, though life may be prolonged for twenty or thirty.

In negroes, the eruption is of a bright yellow, and is much more conspicuous from the contrast with the dark skin; the vesicles that border the edge of the eruption in the spreading-stage are also more distinct, and when the eruption has traversed a large extent of surface, the atrophy of the pigmented part of the skin is much more striking than in the fair races.

In children, unless the manifestations of leprous cachexia mentioned by Hillis are present, there is no special difference in the non-tuberculated cases from those of adults.

Mixed Tuberculated Lepra is the least common form, constituting about one-sixth of all cases; about half are hereditary, and often each parent has had a different form. In British Guiana, however, Hillis found in one hundred and eighty-eight cases the following proportions: tuberculated, two; mixed, three; non-tuberculated, six. It begins sometimes with tuberculated and sometimes with non-tuberculated symptoms, but most frequently the non-tuberculated symptoms take the lead for a few months, and then with fever and the usual phenomena, tuberculation occurs. Destruction of the cartilages of the nose sometimes ensues; the soft palate also may be destroyed by ulceration, and constitutes special features of this form. For the rest, the symptoms are a compound of the other two varieties.

The *prognosis* is bad, and if tuberculated precedes the non-tuberculated symptoms, the progress is more rapid.

The *diagnosis* requires care sometimes, to distinguish it from syphilis, but the presence of anæsthesia will be a certain criterion.

The following is a good example of its mode of onset and course:—

John C. N., æt. twenty-two, came to University College Hospital in January 1885. He was born in Bombay of healthy, well-to-do English parents; he was suckled one month by a native nurse, and lived in Bombay until he was sixteen years old. He ate fish, but it was always quite fresh. The disease began, in October 1879, eighteen months after his return to England, after sitting in wet clothes for three hours, with vomiting, great pain, and swelling of the limbs, ascribed to rheumatism, soon followed by severe

shooting pains down the arms and legs, and great depression, and these pains continued more or less for two years, when he returned to India. Eighteen months later, an infiltrated patch appeared, with pain and swelling on the right calf; anæsthesia in the left forearm and calf developed in 1882; next a brown patch came on the lower jaw, and in 1883 nodules appeared on the ears, and later on the face and scalp. The disease after this progressed in the usual course; phthisis developed in the beginning of 1886, and he died with general tuberculosis in September of that year.

Etiology.—This must be considered as regards its production and propagation.

Concerning *production*, neither climate, soil, race, malaria, diet, bad hygiene, nor antecedent diseases, such as syphilis, yaws, or ague, can be regarded as anything more than predisposing influences, which favour its onset and development, mainly by lowering general vitality, and therefore resistance to disease

As regards *climate*, while it is certainly most prevalent in tropical and sub-tropical countries, it frequently occurs also in cold climates, such as Norway, New Brunswick, and Iceland; in short, it may be found from the poles to the equator, and from the east to the west. Climate seems, however, to have an influence on the form of the disease, as tuberculated leprosy is most common in Europe, probably from the influence of cold checking the skin action, and non-tuberculated in warmer climates.

As for *soil*, it may occur in high or marshy lands, in town or country, by rivers or seas; and though it is true in the main that the home of leprosy is in the vicinity of water, even this must not be said without reservation.

Eating fish, especially if salt or unsound, is supposed by some high authorities to be the cause of leprosy, the idea having probably arisen from fish being a staple article of diet in tropical and sub-tropical countries where leprosy is endemic; but, since in many countries, where, either from religious prejudices or other circumstances, no fish is eaten, yet leprosy is rife, this theory must be regarded as untenable as the sole cause, though if it should turn out, as many suppose, that an intermediary host is required before the bacillus will flourish in the human subject, it would be natural to turn to the food or the water to find the intermediary.

Propagation.—Intermarriage plays a certain part, and in some places, such as the Cape, Provence, Austria, and Galicia, leprosy is limited to certain familes who intermarry.

Heredity was considered, until lately, to have an undoubted influence, but is not an important factor as to numbers. Most Norwegian authorities consider that it may be transmitted collaterally as well as directly, and that it may even skip a generation, the second and fourth being worse than the first and third. They say that in Norway heredity from the mother is more frequent, while in India it is more often through the father; but there are more female than male lepers in Norway, and tuberculated lepra also, in which the sexual power in the male is sooner lost, is more prevalent there. But taking lepers all over the world, the transmission is supposed to be usually through the male parent, and the proportion in hereditary cases of males to females is three to one. The mixed form is the kind most frequently transmitted, and often only one member of a family is attacked. On the other hand, Hansen of Norway disputes its heredity altogether, and Beaven Rake seems inclined to support him; and the idea gains ground that heredity is not a factor at all, and that the family prevalence may be accounted for by the children and parents dwelling together in close relationship and under the same circumstances. The disease may, however, be latent for many years until developed by some depressing influence, and congenital cases are of doubtful occurrence. For these reasons many think that, like phthisis, only the predisposition is transmitted. In considering this question, the absence of congenital cases is not of great weight, for the long incubation of leprosy must be borne in mind, if we compare it with syphilis. Here the incubation is from six weeks to two months, and it is when the child is about that age that congenital syphilis usually appears, the number actually born with its manifestations being in a distinct minority. In lepra, on the other hand, the incubation is more frequently years than months, though in exceptional cases it has been only a few weeks (Bidenkap) and three months (Arning).

Contagion.—The question whether leprosy is contagious or not was answered by the College of Physicians' Report of 1867, and that of the Hawaiian Government in 1886, in the negative, while the majority of the recent Leprosy Commission is also reported to take the same view. There is, however, much evidence of

its being inoculable even by vaccination,* while coitus, prolonged contact, and even breathing in the same atmosphere for a long period, seem to have produced it in some instances. The invariable presence of bacilli in the tissues, and the fact that the prevalence of leprosy in Norway has been diminished 50 per cent. in twenty years by strict segregation, are facts which are also in favour of the contagious theory.

The circumstances that non-tuberculated lepra is the prevalent form in India, and that it is most likely, mainly through pus inoculation, that the disease is propagated from one individual to another, and therefore chiefly through the tuberculated form, are probably reasons which have led many authorities in India (to which Vandyke Carter is a notable exception) to deny the communicability of the disease, while most West Indian authorities, with the exception of Beaven Rake, are in favour of its inoculability. The failure to inoculate animals is not of much weight, as the many failures to inoculate syphilis in animals testify. Arning † inoculated a criminal, apparently. Subsequently it was shown that several members of his family were leprous. Dr. Hatch of Bombay reports the case of a student who cut himself whilst making a post mortem on a leper; this was followed by symptoms of leprosy, the ulnar nerve being especially affected. Vandyke Carter also saw the case, and concurred in the diagnosis of leprosy, but the patient recovered apparently in about a year. One difficulty in proving contagion is that the incubation period is often very long, the disease sometimes not declaring itself for years after exposure to the leprous influence, being generally lighted up by some febrile disturbance or depressing influence. Communicability otherwise than by inoculation is doubless rare under ordinary conditions, and it is probable that it is so only in the same way that phthisis may be communicated by prolonged association in a confined space and breathing a highly contaminated atmosphere.

* An interesting case is reported by Gairdner in *Brit. Med. Jour.*, June 11th, 1887. See also correspondence, August 20th, September 5th, November 5th, etc., by Beaven Rake, Jelly, and Hillis. Arning found bacilli in the vaccine pustule of a leper's arm.

† *Brit. Med. Jour.*, June 26th, 1886, May 24th, 1888, and April 19th, 1890, pp. 909 and 917. See also November 12th, 1887, an article on the "Spread of Leprosy by Contagion," with many cases, and also Besnier's pamphlet, published by Masson (Paris: 1887); also a paper by Poupinel de Valencé, "Is Leprosy Contagious?" *Lancet*, May 17th, 1890.

The bad hygienic conditions in which lepers often live in most countries in which leprosy is rife are highly conducive to the spread of the most feebly contagious disease. The long incubation is necessarily a great obstacle to tracing the real source of the disease in any particular case.

Pathology.—Modern research is strongly in favour of the disease being one of constitutional origin, closely analogous to syphilis, in which special bacilli, either directly or indirectly, by their presence set up inflammatory changes in the tissues, to which many of the lesions are due. They also specially modify by their presence the exudation cells, and the endothelium of the lymphatic and blood vessels, forming the so-called "lepra cells" and giant cells which impart specific characters to new growths, which would otherwise not differ from ordinary granulation tissue, except that the infiltration is in foci instead of being diffused, and is poorly supplied with vessels.

Morbid Anatomy.—This has been investigated by many observers, such as Virchow, Thoma, Kaposi, Vandyke Carter, Abraham, and many others, while as regards the bacilli discovered by Hansen, in 1874, we are also especially indebted to Neisser, Köbner, Koch, Unna, Cornil, Thin,* etc.

A section of a nodule exhibits insignificant changes in the epidermis, which may be much thinned by compression, the papillæ more or less obliterated, and the lower cells deeply pigmented, or there may be down-growths into the corium, while epithelial crusts may be present in the epidermis, and cylindrical masses of slightly altered epidermic cells extend deeply into the growth.

The chief changes are in the corium; the mass of the nodule is made up of granulation tissue of small exudation cells, which may be either in masses or scattered, and vary much in size, leading by gradations to larger or so-called "lepra cells," and on up to large multi-nucleated or "giant cells." The last are situated in spaces bounded by fibrous tissue in the granulation mass, and chiefly in the deeper and more peripheral part of the mass. Abraham thinks the giant cells are formed from the endothelium of the lymphatic and blood vessels, and Neisser and Thin think that the "lepra cells" are exudation or lymph cells, which enlarge under the influence of one or more bacilli contained in them. The external and middle coats of the vessel are infiltrated with masses of cells larger than leucocytes, which bulge out of the vessel wall on the one side and block up the lumen more or less on the other.

The cells of the sebaceous glands are at first very much enlarged, accounting for the greasy skin, and subsequently the whole gland degenerates

* Thin's recent work gives a good *résumé* of our present knowledge concerning lepra bacilli.

and is destroyed. The hair follicles are for the most part but little altered, the follicular cells being only occasionally proliferated. Hoggan has specially examined the sweat glands. He says, they are implicated early in the process; at first the cells undergo some hyperplasia, but soon vacuolate and break down, and the glands, as a whole, soon undergo atrophy from the pressure of the infiltration breaking down and destroying the acini; he also denies that the lymphatics play any important part in the disease, the changes being secondary, the most striking being dilatation of the valvular pouches.

The essential part of the whole process, whether diffused or circumscribed as in the nodules, is an infiltration of the skin or other organ with granulation tissue, differing from that of lupus and syphilis, inasmuch as the neoplasm is less vascular, and the process therefore exhibits less vitality, and thus less power of organisation on the one hand, and slower absorption or retrogression or destruction on the other; moreover, although the cells are often in masses, there are not the circumscribed nests of cells as in lupus, and the lepra cells are larger and more persistent.

In the skin, the changes commence first, in either the superficial or deep part of the corium, and, like other such infiltrations, are most abundant round the vessels, especially round the glands and follicles. As the infiltration extends, it presses upon and leads to the proliferation of the rete

Fig. 45.—Lepra bacilli. Obj. $\frac{1}{12}$ Leitz, oil. imm. ocul. 2 in.

above, and involves the fat below, forming foci separated by bands of connective tissue, each layer of which may be separated by cells; eventually, the glands and follicles, whose epithelium at first showed proliferation, undergo degeneration and break down, along with the leprous infiltration into which hæmorrhage sometimes occurs.

In non-tuberculated lepra, minute foci of exudation cells permeate the external sheath, and pass in between the fibres, pressing upon them, both individually and collectively, and irritating the nerves where the pressure is slight, so that their function is exalted, and hence the pains and hyperæsthesia of the early stage; and when the pressure is great, their function is destroyed, producing the numbness and anæsthesia of the later stage.

The infiltration being in foci, some fibres escape, and hence the oases of sensibility which occur in the anæsthetic areas. In tuberculated lepra, the cell masses press on certain nerve fibres at their periphery, and produce the same phenomena of hyperæsthesia at first, and anæsthesia afterwards, but the distribution of the anæsthesia is localised to the nodules.

Besides the skin, mucous membranes, and nerves, nodules may sometimes be found on the pleuræ, but not in the lungs. Lardaceous degeneration of the liver, spleen, and kidneys may often be found, doubtless produced by the prolonged suppuration, but no true leprous disease is found in the lungs, liver, or kidneys. Atrophy of the testes occurs when the patient is under puberty, from a small cell infiltration between the tubules pressing

on them. The lymphatic glands are always more or less enlarged, but no specific change can be demonstrated.

The bacilli were discovered by Hansen, in 1874, and are found in the "lepra cells," in the skin, mucous membranes of the palate and larynx, in the interstitial tissue of the peripheral nerves, the cornea, cartilage, testicle, lymphatic glands, spleen, and liver, in the walls of the blood vessels, the hair follicles and sebaceous glands (Babes and Unna), but whether they occur in the blood is yet *sub judice*, some affirming, others denying it. They are not in the muscles, spinal cord, or in the secondary lesions, such as bullæ, or diseased bones and joints; and had not been found at all in anæsthetic leprosy until Arning found them in the nerve trunks supplying the anæsthetic area. They are straight or very slightly curved rods, half to three-quarters of the diameter of a red corpuscle in length (4 to 6 mm. or $\frac{1}{5000}$ inch); but Cornil says that those of the testicle, liver, and other parenchymatous organs are three or four times larger than those in the skin nodules, in which development is hindered by compression.

The rods were described as of uniform diameter, or with knob-like expansions at their ends or in their length, which are due to the presence of two to five spores, but micro-photographs by Andrew Pringle* showed them to be thickened at one end and slightly tapering to the other. Their occurrence in clumps is characteristic. Tubercle bacilli are much more uniform in diameter and more scattered. They are best demonstrated by staining the section by Ehrlich's process with fuchsin, and methyl blue as a contrast, in the same way as the phthisis tubercle bacilli, which are much larger than those of leprosy. They are readily found also, as before mentioned, after drying on a cover-glass and staining the *débris* of a broken-down nodule or the serum obtained by pricking a nodule after compression with a clamp, as Manson recommends, while Guttmann has shown that they can be seen in motion, even without staining, by teasing out a piece of fresh leprous tissue in distilled water, when they appear much thicker than those in alcohol preparations.

Unna, by a special method of desiccation, claims to get a truer picture of the bacilli distribution, and says that they live outside the cells altogether, and that colonies cluster on the inner wall of the lymphatic channels; he also is of opinion that the supposed bacilli are streptococci. Most of these views are controverted and ascribed to Unna's mode of manipulation. Thin and others have shown that the bacilli are found in the cells. Lindsay Stephen,† using Ehrlich's and Gram's methods, is of opinion that there are some free bacilli, and also some in the lymphatic channels, but that they are usually contained in the lepra cells, which he thinks are leucocytes or connective-tissue cells, modified by the presence of the bacilli. That they are the true morbific agents is rendered in the highest degree probable by their being invariably present in tuberculated leprosy from all parts of the world; their presence coincides with the development of the lepra cells; and thirdly, though inoculation has wholly failed in many of the lower animals,

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* See Thin's work, *loc. cit.*, with tubercle bacilli for comparison.

† *Brit. Med. Jour.*, July 18th, 1885,—a good paper with *résumé*, and many references.

Köbner has succeeded in producing local leprosy in the dog, and Danisch in a cat, after many failures, by placing portions of a leprous nodule under the skin, when a new growth was produced, which swarmed with bacilli of the same character as the lepra bacilli. Leloir and Campana, however, think that the bacilli found in the cells after these inoculations are not newly grown bacilli or rods, but the original bacilli taken up by the leucocytes as inanimate particles. All attempts at cultivating the bacilli of the skin in culture media have until lately failed. Campana and Ducrey have cultivated bacilli from lepra nodules, very like those of lepra, on peptonised agar agar, bouillon, and 3 per cent. solution of grape sugar. Ducrey showed cultivations at the recent International Congress at Vienna. The bacilli were identical with those obtained by Campana, and he stated that the organisms would not grow in an acid medium and were anærobic, and absolute exclusion of air was therefore essential to success.

Diagnosis.—No mistake in any of the forms can well arise when the disease is fully developed. The early symptoms of the tuberculated forms may be mistaken for acute rheumatism and for ague, and when the patient is in a malarial district, the diagnosis may be very difficult, but if he is in a leprous district the extreme drowsiness, the vertigo along with epistaxis, should lead to a suspicion of the state of things, especially if there is a hereditary taint.

The early eruption of leprosy may resemble some cases of *erythema exudativum*, but the absence of hyperæsthesia or anæsthesia in the latter, and the febrile symptoms being only slight or absent, are distinguishing features. Moreover, erythema papules are, as a rule, not so large, and when they spread, clear up in the centre; they are less often seen on the face than lepra spots, and the whole disease runs a more acute course, leaving at the most transitory, bruise-like stains, while the eruption of lepra is very persistent, fading to orange-coloured spots, remaining slightly elevated and lasting for months.

In *syphilitic roseola*, the patches are small, not over three-quarters of an inch in diameter, very little raised, and the other symptoms of syphilis would certainly be present.

The nodules may resemble those of *syphilis*, and on the whole that is the disease for which leprosy is most likely to be mistaken before the symptoms are fully developed.

Leprous nodules have their special seat of predilection; those of syphilis are indiscriminate, and may come where leprous nodules never, or rarely, appear. Moreover, the nodules of syphilis are not grouped, have a characteristically depressed centre after a time, and run a more acute course, whether they become

absorbed or break down. I have twice seen leprosy and syphilis combined; the presence of anæsthesia helped to distinguish in one case, while in the other the facial aspect of lepra was characteristic.

From *lupus* nodules, those of leprosy are distinguished by being symmetrically disposed to some extent and by their being more persistent.

In mixed lepra, if ulceration of the palate and destruction of nasal cartilages were present, *syphilis* would be suggested; but by this time anæsthesia would have set in, which would practically exclude syphilis, and then further investigation would reveal that the patient had other symptoms of leprosy.

The non-tuberculated form has been mistaken for syringomyelia; but though the sensory symptoms of the presence of tactile sensibility and the absence of sensibility to pain, heat, and cold were similar, the patient had paralysis of the orbicularis palpebrarum, thickening of the ulnar nerves, and had lived in Tonkin. Characteristic skin lesions, too, are rarely absent. Great care is required, in rare instances, when the nerve symptoms are unilateral.

Prognosis.—The disease is almost invariably fatal, and even though existence is prolonged for many years, it is at best a miserable one.

Recovery occasionally takes place in temperate climates, both in the tuberculated and non-tuberculated form; but the chance is better for the nerve form, though there is more or less permanent disablement. A tuberculated case under my care for four years has improved considerably.

The duration varies greatly, according to the form of the leprosy; the tuberculated is soonest fatal, the mixed next, and the non-tuberculated least. The average duration of the first is eight years, of the second ten years, and of the third fifteen. Mental depression, the patient being young, and the disease hereditary, are unfavourable circumstances in all forms.

In tuberculated lepra, unfavourable symptoms are the febrile exacerbations being frequent, the air passages being involved and the internal organs extensively implicated, in which case, the febrile symptoms are more severe and the urea excretion greater, while extensive ulceration and the supervention of lardaceous disease are signs of especially bad import.

Favourable elements are: the patient coming under treatment

early, removal to a temperate climate, the absence of serious complications, the nodules shrinking, and the febrile exacerbations occurring at long intervals. Diffuse infiltration is better than many nodules, the progress being slower, the fever lower, and the case more amenable to treatment. In non-tuberculated lepra, the disease is almost as certainly fatal in the long-run, but the end is much further off, and if seen early, or the nerve implication is not extensive, and there are no serious complications, the disease* may be arrested, and even improvement in the sensory symptoms, with return of sweat secretion, be obtained; eventually, however, the eruption spreads, the bones disintegrate and lead to mutilations, with all the other troubles, already described.

In the mixed form, the patient is liable to the accidents of both forms, but, on the whole, the disease is rather slower than the purely tuberculated cases in its progress, but ulceration of the soft palate is especially liable to occur in this form, and add to the other troubles.

Treatment.—This, unfortunately, can only be palliative or preventive, the number of so-called specifics bearing testimony to the incurability of the disease. Of the many recommended only two† have stood the test of long experience,—Chaulmoogra oil from gynocardia odorata, and Gurjun oil from dipterocarpus lævis. These oils are taken internally and rubbed in externally; both are very nauseous, and are best given in emulsion or pearls, beginning with small doses. The Chaulmoogra oil should be begun in doses of three minims, or one pearl, three times a day after meals, and gradually increased up to the limits of the patient's endurance, experience having shown that the result is far more satisfactory when large quantities, such as one hundred drops or more a day, can be taken, but it is seldom that more than a drachm a day, and often less, can be tolerated, nausea, vomiting, and diarrhœa ensuing, if the limit of the individual is exceeded. Gynocardic acid has been recommended in doses beginning at half a grain, and gradually increasing it up to three grains three times a day. The oil also

* Mr. Hutchinson showed a case at the International Congress of 1881 of a woman who had had this form of leprosy thirty years before, and was quite well except that she had still paralysis of the arms and anæsthesia.

† "Kauti" was a celebrated secret cure by a Hindoo named Bhau Daji. It was an oil derived from a plant which he pointed out to a relative of Mr. Stanley Boyd, who informs me that its name is known as hydnocarpus imbricans. It somewhat resembles Chaulmoogra oil.

should be well rubbed in, in the form of an ointment, consisting of equal parts of the oil and lard; the friction should be thorough and prolonged, where possible for two hours a day, previously cleaning off the old oil with fuller's earth, or by the aid of a warm bath. Strychnia or nux vomica may be advantageously combined with Chaulmoogra, and assists in enabling the patient to tolerate it. Piffard and others have a high opinion of strychnia by itself as a remedy. When Gurjun oil is employed—and it is spoken of most highly by those who have used it in the tropics—it is given internally, in an emulsion consisting of lime-water three parts and Gurjun oil one part, half an ounce being given twice a day; at the same time, a liniment of equal parts of the oil and lime-water is rubbed in, in the same way as the Chaulmoogra. I have found, that in this climate, the emulsion cannot be made by this formula, the oil being too solid. For the mixture it was found best to rub it up with powdered gum arabic and water; but English patients could not take more than a drachm a day, and that only by raising it very gradually from a five-minim dose. The liniment can be made with olive oil instead of lime-water. In the writer's hands, the Chaulmoogra oil appeared to be more useful than Gurjun, but in the tropics, Gurjun is more valued. I have found simple oils quite as useful for a liniment, and greasy applications always seem grateful to the leper. Besides direct medication, frequent baths, especially Turkish, are to be used, and strict attention to general hygiene should be paid. A very liberal dietary should be ordered, and Hutchinson advises a good allowance of a generous wine. Sulphur baths are strongly recommended by some, and since scabies is a very common complication in the tropics, it has a double advantage. The patient should be well and suitably clad according to the climate, and chills carefully avoided, as they frequently seem to determine a fresh exacerbation. Other remedies have had advocates lately. Unna claims to have cured a case with sulpho-ichthyolate of soda or ammonium, combined with the use of external reducing agents. The soda salt has entirely failed in my hands in two cases. In a boy of ten, in an early stage, five-grain doses produced anorexia, nausea, and vomiting, and an older tuberculated case could not get beyond eight grains three times a day. There was no improvement in the leprous symptoms.

Externally, Unna recommends ointments of resorcin 20 per cent. or ichthyol salts 50 per cent., pyrogallic acid 5 per cent. or chrysa-

robin, the last being the most powerful. Chrysarobin was tried most thoroughly in one of my patients, before he came to me, without the least benefit. Unna's latest formula is chrysarobin five parts, ichthyol five parts, salicylic acid two parts, vaseline one hundred parts, but on the face, pyrogallic acid is used instead of chrysarobin. Pyrogallic acid must be used cautiously over a limited area, and indeed it is best to begin with all of them in this way. Arning, who had large opportunities in Honolulu, thinks very highly of a 10 per cent. solution of salicylic acid in oleic acid rubbed into the infiltrations. Pyrogallic acid also answered well in his hands. He also gave salicylate of soda from seven to fifteen grains three times a day. I have given it in two cases, but was unable to observe benefit from it.

Tuberculin excited great hopes for a time, on account of the marked reactions produced by it in lepers ; subsequent experience has shown that it is not only not of permanent benefit, but that it is dangerous,* as it sets free the bacilli instead of destroying them. In a tuberculated case under me, who had been free from febrile attacks for three years, two milligrammes excited an attack of leprous fever which lasted three weeks, and a copious outbreak of fresh nodules ensued. They disappeared again with frictions of Gurjun oil liniment, and ultimately he was no worse, perhaps had a little less infiltration, but it was too dangerous an experiment to repeat.

When the febrile exacerbation is present, full doses of quinine should be given, five grains of the hydrochlorate every four hours combined with an effervescing potash mixture. The strength should be carefully supported by highly nourishing diet, and hot baths are especially useful. Cod-liver oil, after the febrile symptoms have subsided, is beneficial. It is an exploded error that there is any disadvantage in healing the sores as soon as possible, and they should be treated on general antiseptic principles ; iodoform and wet boracic acid lint, *e.g.*, are good applications, but when very extensive, finely carded oakum over a simple dressing is cheap and efficient, and prevents the fœtor which too often poisons the air of asylums (Hillis). Most authorities recommend a change to a temperate climate, and certainly patients should be removed from districts where the disease is endemic. There can but be little

* See a summary of the effects of tuberculin in leprosy in a leader in the *Lancet*, April 16th, 1892.

doubt, however, that cold and variable climates have an unfavourable influence, by increasing the liability to chills.

As *preventive* measures, strict segregation is the only effective plan, and it is probable that the disease was stamped out of England and the greater part of Europe by this means, and great diminution in the number of lepers has ensued in Norway since its adoption. Those who have to dress the sores of lepers should be very careful if they have scratches or abrasions, and not neglect carbolic acid or corrosive sublimate ablutions afterwards.

RHINOSCLEROMA.*

Definition.—A granulation new growth of almost stony hardness, affecting the anterior nares and adjacent parts.

This disease was first described by Hebra and Kaposi, in 1870, from seven cases, and their account was extended by the experience of eight other cases, in their classical work, from which the following account is taken, there having been only three instances † in England out of about one hundred published cases. The disease occurs chiefly in the Austrian Empire and South-west Russia. A few other cases have been observed in Italy, at San Salvador, and other parts of Central America, in Brazil, where it is said to be not very rare, and a case from Egypt has been reported by S. Davies. Vidal had a case from Buenos Ayres, and

* *Literature.*—Hebra's *Skin Diseases*, vol. iv., p. 1. Monograph by Celso Pellizzari (Florence: 1883). Good analysis in *Ann. de Derm. et de Syph.*, vol. iv. (1883), p. 549; in volume for 1890, p. 173, is a full analysis of a good paper by Wolkowitz. A paper by A. Castex, in *Jour. Malad. Cutanées*, vol. iv. (1892), p. 161, gives a *résumé* and bibliography to date.

† Semon's and Payne's case, a South American Spaniard, *Path. Trans.*, vol. xxxvi., 1885, coloured plates and histology. This is the same case which had been in Paris, and was histologically examined by Cornil, *Prog. Méd.*, tom. xi. (1883), p. 587. I saw this case both at St. Thomas's Hospital and at the Pathological Society. He was a native of Guatemala, æt. eighteen, and the disease had been present four years. Morell Mackenzie, in *Brit. Med. Jour.* for March 21st, 1885, gave a further account of this case, and in his work on *Diseases of the Throat and Nose* he gives a summary from forty cases. J. Anderson showed a case of a boy, æt. thirteen, at the Dermatological Society in 1890. It had recurred five years after removal. The boy was born in England, but looked as if he were of foreign extraction.

Besnier's and the other Parisian cases were also foreigners. Kiegan relates four cases in Hindoos in the Indore Hospital.

Symptoms.—The disease generally commences in the mucous membrane of the anterior nares and the adjoining skin. Wolkowitsch analysed 85 cases, and found the regions attacked were,—nasal fossæ, 81; exterior of nose, 74; pharynx, 57; upper lip, 46; larynx, 19; palatine arch and velum, 17; upper alveolar border, 16; trachea, 5; lachrymal sac, 5; tongue, 4; lower lip, 2; ear, 1.

The lesions consist of flattish, isolated, or coalescent nodules or raised plaques, imbedded in the cutis vera, or deeper layers of the mucous membrane, and sharply defined from the normal skin. The growth is peculiarly hard to the touch, though not entirely devoid of elasticity, smooth, glossy, and either of normal colour veined with dilated vessels, or of a uniformly bright or dark brownish-red colour, quite devoid of hair or glands. The epidermis covering it is tense and easily cracked, forming rhagades at the natural folds, and from these exude a viscid secretion, which dries into yellowish adherent scabs. It is not spontaneously painful, but aches severely after firm pressure.

It commences quite painlessly, as a simple induration, on the inside of the alæ nasi, the mucous membrane of the septum or from the upper lip, grows slowly, but with a tendency to spread, but never to spontaneous involution, and it may last for years without any change except superficial excoriation. If any attempt at removal is made, it recurs comparatively rapidly, but is always a purely local disease, not affecting the health in any way except from its mechanical obstruction of the nostrils, which may be quite occluded when it is fully developed, and dangerous symptoms may arise from obstruction of the pharynx or larynx. At the same time, it widens and flattens the nose, making the front part very tense and hard, while it may gradually implicate the whole thickness of the upper lip, and in Salzer's case spread even to the periosteum and bone itself of the superior maxilla.

Variations.—In one case, it began in the velum and hard palate, in another as a hard polypoid tumour from the mucous membrane of the nose. There is also, often, absorption of the septum nasi from pressure, once perforation of the hard palate, but not from tumour, and once perforation of the skull into the brain (Kaposi); there has also been cicatricial-like sclerosis, but with very little

tendency to tumour formation, in the pharynx, palate, and other parts. It never breaks down except from injudicious treatment. Intercurrent erysipelas and threatened suffocation are the chief dangers, otherwise the disease may go on for fifteen or twenty years, and a case lasting twenty-seven years is on record. Lubliner records a case of spontaneous disappearance after typhus, and Lutz a doubtful one after typhoid.

Etiology.—Both sexes are almost equally liable, and the ages hitherto have been from fourteen to forty. Beyond this nothing is known as to causation, but its narrow geographical limits suggest some kind of endemic influence.

Anatomy.—The anatomy has been investigated by Kaposi, Mikulicz, Cornil, Payne, and others, with general agreement. The chief change is in the corium, in which the papillæ are elongated, and there is a dense granulation-like cell infiltration, with, in some parts, epithelial cells also, but not true giant cells, though Cornil describes large round cells with one or several nuclei ; these are the same as described by Mibelli, confirmed by Noyes, and are of two kinds—so-called watery and colloid cells. The latter Noyes traced in various stages from infiltration round cells ; bacilli have been found in both kinds. Mibelli, however, ascribes these cells not to degeneration of the cell, but that their protoplasm has been replaced by the zoogloœa of the rhinoscleroma bacillus. Pawlowsky takes the same view. There is not much stroma as a rule, but in parts there is very dense fibrous tissue. The epidermis is generally not much altered, but Payne and Mikulicz describe considerable branched downgrowth of the interpapillary processes, and Payne also found in the epidermis nests very like those of epithelioma, but containing an imprisoned hair. Frisch, confirmed by Cornil and Alvarez, Paltauf, Payne, etc., found characteristic * bacilli, short, thick, ovoid, and capsulated, and staining only at the ends ; these occur either in free groups, or in cells, in places where the epithelioid cells are most abundant. They closely resemble the pneumo-cocci of Friedländer, but are considered to be quite distinct by Dittrich, Cornil, Alvarez, Rydygier, Ducrey, Paltauf, etc., while others consider them identical.

Pathology.—On the whole these investigators regard the infiltration as *sui generis*, whose nearest relations are with granulation

* They are best demonstrated by prolonged staining (twenty-four hours or more) with 5 per cent. solution of methyl or gentian violet in saturated aniline water, and decolorisation with Gram's iodine solution. Mibelli prefers Grenacher's alum carmine. The sections are placed in a 4 per cent. solution in hot water, and allowed to remain an hour or more,—twenty-four hours are not injurious. They are then washed in water, treated with alcohol in the usual way, and mounted in dammar. The bacilli could be easily found in infiltration cells, but always in those which had undergone some change.

tumours, such as are seen in lupus, tubercle, syphilis, and leprosy. Noyes and Unna are inclined to the view that the growth is an inflammatory product consequent on the blocking of the lymphatics by the bacilli.

Diagnosis.—The stony hardness, slow painless growth without disintegration, and its predilection for the anterior nares, are pretty characteristic. In some of these respects, it is imitated by syphilitic nodules, keloid, and epithelioma.

Syphilitic infiltration offers trouble only at first, as it soon shows signs of disintegration, and any doubt would be resolved by the administration of specifics.

Keloid, with dilated vessels over it, would be very like, but is rarely met with about the nose; a history of a previous scar would help, but microscopic investigations of an excised portion might be necessary for certainty.

Epithelioma is extremely rare on the upper lip, and being on the border of the mucous membrane and the skin would ulcerate comparatively early; before this the pearly, vesicular-looking nodules on the border of an epithelioma, would assist to a right conclusion. Some sarcomas are very like it at first and until they begin to break down.

Treatment.—Permanent removal has never yet been accomplished, the disease speedily recurring after excision, probably because it is seldom seen early enough to be able to get beyond the disease, in which it is remarkable, that it does not cut nearly so hard as it feels to the touch. Attempts to keep the nostrils permeable have been made by boring through the growth with caustic potash, or removal with the sharp spoon, but only temporary relief has been afforded, though the perforations may be kept open by antiseptic tampons. As the patients live long with comparatively little discomfort, it is probably better to leave them alone, as far as operative interference is concerned. In one case, Lang obtained promising results with a salicylic acid treatment, inside and out, as follows:—A 1 per cent. solution of salicylic acid was injected into the sclerosed parts once a day, later a 2 per cent. salicylate of soda solution was used. Metallic tubes covered with salicylic acid plaster were introduced into the nostrils. Naso-pharyngeal douches of salicylate of soda were employed, an alcoholic solution of the acid applied, where the mucous membranes were affected, and salicylic acid snuff ordered; in fact, salicylic

applications in every conceivable way; and internally, ten grains of the acid three times a day for two months. One and 2 per cent. solutions of carbolic acid were also used. Very great improvement ensued in all parts, the infiltration became softer and less conspicuous, and the patient was improving in every way, but he had to leave the hospital before he was quite cured. This treatment, therefore, deserves further trial.

KELOID.

Deriv.—χηλή, a claw.

Synonyms.—Cheloid; Alibert's keloid.

Definition.—A fibro-cellular, corium new growth, occurring after injuries to the cutis, and perhaps spontaneously.

This disease has no relation to Addison's keloid or morphœa. The so-called true keloid is a very rare disease, one in two thousand according to Hebra and McCall Anderson, though some authors give a higher proportion.

From the time of Alibert, who first clearly described this disease, onwards, authors have spoken of a true and false, or spontaneous and scar keloid, while Dieberg has added the hypertrophic scar, Hawkins, the verrucose cicatricial tumour, and Wilkes, the syphilitic keloid. The first two only are of practical importance, and even between these, as will be shown in the etiology and pathology, the distinction is probably more artificial than real, and is only provisionally retained here.

Symptoms.—The typical spontaneous keloid is often single, and its most common position is on the trunk, especially on the chest over the sternum (half of all cases), where it forms a firmly elastic tumour of cicatricial aspect, sharply defined, springing up abruptly from the healthy skin, and projecting from one-sixteenth to a quarter of an inch or more; its shape is very variable, oval or disc-like, cylindrical or rod-like, and occasionally nodular, often rather narrow in the middle in the rod shaped, and slightly depressed in the centre in the disc form, which may be pedunculated; and the frequency with which it sends out claw-like processes on each side, gained it its appellation. The surface is smooth, the epidermis tense, unless involution is occurring, and the colour is white

and shining, or pinkish or purplish from dilated vessels coursing over it. It is generally tender, and sometimes spontaneously painful, the patient complaining of pricking, burning, or itching, which is occasionally severe; on the other hand, all these symptoms are often absent, and the claim to distinguish true from false keloid by their presence cannot be maintained.

After attaining a certain size, the tumour may remain stationary for an indefinite time, or progress very slowly, *e.g.*, Callender's case was observed for ten years, during which period it gradually enlarged, while Duckworth's case existed forty years, attaining to the size of a horse bean in sixteen years, while twenty years later it was two and a quarter by one and three-quarter inches. In a case of my own, a gentleman, æt. sixty-seven, who had numerous large scar keloids on the trunk and limbs, they dated from boyhood, fifty-three years before, coming on after boils, and some of them had grown very large, and were still enlarging. They itched and pricked at times, especially after alcohol.

Keloids may undergo involution, either partial or complete. Three of the tumours in the case just mentioned had disappeared completely, leaving the skin which contained them as a loose sac, and I have seen two instances of small scar keloids, which developed and declined under observation, taking three years in a syphilitic keloid in a young man, while in a woman of forty-five a keloid following injury had not quite gone in four years. On the other hand, in Goodhart's case, which followed small-pox scars, and was well-nigh universal, large tumours involuted completely in a few months. Many other cases are on record, and Hutchinson thinks that involution is the rule in the keloid of young people, while in other subjects, its disappearance is slow, or does not occur at all. In Erasmus Wilson's case, the tumour varied in size according to the patient's health.

Variations.—The less common positions for supposed spontaneous keloid are the face, ears (especially the concha and lobule, symmetrical when due to earrings), both surfaces of the extremities, the back of the hand and foot, and the external genitals. When multiple—and they may be numerous * if they are on the chest—

* De Amicis' case, *Comptes Rendus*, Derm. Cong., Paris, 1889, with three coloured plates, p. 93; and Vidal, p. 103. In a case of Schwimmer's, p. 568 of Ziemssen's *Handbook*, there were 105. Original communication in *Viertelj. f. Derm. u. Syph.*, 1890, p. 225.

Kaposi says that they are arranged in rows parallel to the ribs; but this is certainly not always the case. In de Amicis' case, a woman, æt. twenty-seven, there were 318, most of them spontaneous, and arranged in very exact symmetry. They were hemispherical, from a pin's head to a pea in size. When small, they may be imbedded in the skin, and only perceptible to the touch.

Keloids rarely ulcerate or take on a malignant character, but a case in which both these complications occurred is recorded by W. Anderson.* On the other hand, epithelioma in hypertrophic scar tissue is not so rare, especially if subjected to repeated irritation (see Epithelioma).

Scar Keloids, of course, come anywhere, and, when due to the scars of an eruption like acne or small-pox, in any numbers, and do not differ in any other particulars, except their origin, from the spontaneous form. They spring from the scar, but are not always limited to it, often spreading slowly, like the others; on the other hand, the **hypertrophic scar** never spreads beyond the limit of the scar, and is simply a thickened cicatrix. Keloid is said to be particularly frequent in syphilitic scars, to be softer and more likely to involute in them than in others, but this is not established as a general rule. Verneuil, however, relates that in a case of syphilis, where keloids covered the whole body, they all disappeared under iodide of potassium. It would be easy, however, to show, from my own and general experience, that iodides do not usually make much impression on keloids in syphilitics. Bryant says that it is pigmented, but this is not especially frequent in my experience, and pigmentation follows the disappearance of non-syphilitic tumours sometimes, as in Goodhart's case.

A variety, *en plaques*, has been described by Hutchinson and R. W. Taylor, in which there is a circumscribed, hard, not well-defined plate imbedded deep in the cutis, and not projecting, though it may adhere, to the epidermis in parts, which is then very pale and smooth, but not glossy. In one out of the three cases, there were pain and itching at times. In Hutchinson's two cases, there was no recurrence after removal.

Acne Keloid is a keloid tumour with its long axis transverse,

* *Lancet*, May 25th, 1888, p. 1025,—the woodcut is in the next number.

which is seen sometimes on the nucha. It has tufts of hair imbedded in and projecting from it, as the neoplasm has grown up round groups of follicles which have escaped the destructive influence of the antecedent process, which has been described by Kaposi under the name of dermatitis papillaris capillitii (which see). French authors have designated it acne keloid, which fits well the terminal part of the process. I saw a well-marked instance in a patient of my late colleague, Berkeley Hill, just in time to make the diagnosis before it was excised. Microscopical examination showed that it was composed of dense fibrous tissue.

Etiology.—Sex appears to have no influence, though some authors state that it is more common in women. It may occur at any age; one case was congenital (Bryant), and it has been seen in a child of six months, and at all ages from this upwards; but it is rare in old age, and uncommon in puberty. It is said to be more common in some races, especially in negroes, in whom it very frequently follows slight injuries. There is some evidence* also of family predisposition, and that there is a strong individual predisposition in some patients, is obvious. According to Kahler, keloid is one of the characteristic symptoms of syringomyelia, but this is an exaggeration, to say the least. The researches of the Keloid Committee of the Clinical Society,† of which I was a member, threw much doubt on the spontaneous origin of keloid, and though it could not be disproved in the face of such cases as those of Amicis and Vidal, it is certainly much rarer than was formerly supposed. This much is, however, certain, that the so-called false or scar keloid may ensue on the site of very trifling lesions, *e.g.*, leech bites, acne scars, scars from herpes and all kinds of pustular and vesicular eruptions, and even from contusions, frictions, or blisters in which there is no cicatrix; indeed, one of the most extensive cases I know of followed an attack of prickly heat‡ in a soldier in India after the irritation had been present a month. It

* Hebra, vol. iii., p. 278; three sisters and the mother were affected. Wilson and Bryant also mention cases.

† *Clin. Soc. Trans.*, vol. xiii., 1880, report on Dr. Goodhart's interesting case in same volume, with plate; many of the facts, above related, are drawn from this report. See also Hutchinson, *Med. Times and Gaz.*, May 23rd, 1885.

‡ Two cases of kelis by T. Longmore, *Med. Chir. Trans.*, vol. xlvi., 1863, illustrated. The disease affected the whole back in honeycomb bands, and there were also tumours on the chest and face.

is evident, therefore, that the origin of many so-called false keloids may be overlooked, and they may erroneously be considered to be spontaneous. While the existence of spontaneous keloid is not disputed, it is evident that it is futile to try and draw distinctions between it and scar keloid.

Possibly the frequency of keloid on the sternum and mammæ may be accounted for in women, by the pressure and friction of the stays, and in men, by the frequency with which that region is exposed to similar influences, *e.g.*, leaning against a desk, etc. I have observed scar keloid in association with the following diseases: morphœa, fibroma, and mutiple fatty tumours, and appearing on the site of acne and revaccination scars. In vaccination scars, several cases are on record, and in psoriasis without antecedent scarring (see that disease).

Pathology.—All that we know of the pathology is, that it is a connective-tissue new growth, commencing round the vessels, intermediate in character between a cicatrix and a sarcoma, and is generally, if not always, connected with previous injury of the affected tissues, though the injury may be so slight as to be overlooked.

Anatomy.—The most recent observations on spontaneous keloid, have been made by Langerhans,* Warren jun.,† Babes, and Denériaz;‡ and upon scar keloid by Kaposi, Neumann, and myself.

The first two observers found that in spontaneous keloid, the tumour was imbedded deeply in the corium, and that the papillæ and rete cones over it were intact, and hence they argue that it is a spontaneous new growth in the corium. The tumour consisted of dense bundles of connective tissue, with the fibres running for the most part parallel to the long axis of the tumour and with the skin surface; here and there, were some oblique bundles traversing the tumour; there were but few nuclei and spindle cells, and they were round the scanty vessels in the centre of the tumour, but at the younger peripheral part, both vessels and spindle cells were abundant. Warren also found the vessels affected far beyond the tumour, and these accounted for the recurrence of it after removal. Babes found that the papillæ and cones were absent; either the tumour he examined was really a scar keloid, or the papillæ or rete cones were obliterated by the pressure of the new growth. In scar keloid, the papillæ and rete cones

* Virchow's *Arch. Dritte Folge*, Bd. xl., p. 334, with good *résumé* of previous observations.

† *Akad. der Wissenschaften zu Wien.* 2 *Sitzungsberichte Abtheilung*, 1868, p. 413.

‡ *Thèse de la faculté de Berne* (1887). A good detailed analysis in *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 573.

are said to be absent, and Kaposi describes the same dense connective tissue, with few nuclei and vessels, as in the spontaneous form. Denériaz found giant cells in young keloid.

The tumour I examined * had certainly not begun to form more than three weeks, springing up upon each side of a linear cicatrix, and perhaps from the holes made by wire sutures. Sections were made parallel and transversely to the long axis of the tumour.

The papillæ and rete cones were absent over the greater part of the tumour, but not over all, their presence or absence depending upon the depth of the tumour in the corium. When they were absent over the tumour, they were notably enlarged immediately beyond it. The rete was rather thickened over the tumour, the palisade cells were somewhat irregular in shape, but were in an even line below. Between the rete and the tumour, there was a thin layer of highly vascularised, loose, connective tissue, with the vessels dilated and the fibres running transversely to the

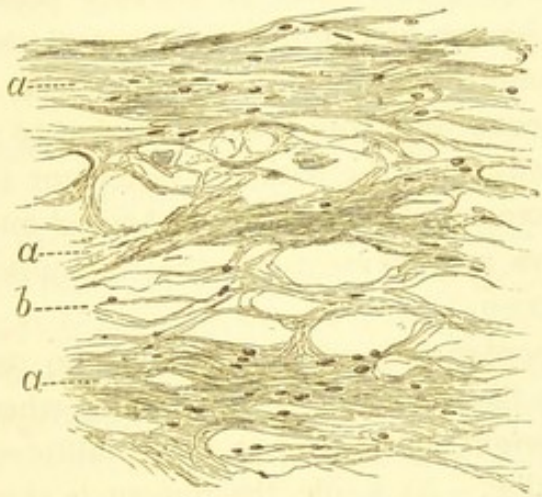

Fig. 46.—Recent scar keloid.

a, a, a, bundles of delicate fibrils of new connective tissue ; *b,* nuclei scattered through the connective-tissue bundles.

long axis of the tumour. In transverse sections, the tumour was seen to be bounded below by fibrous tissue, compressed into a pseudo-capsule imperfect at the sides. The tumour itself was freely traversed by branching dilated vessels which formed incomplete loculi, filled with cribriform tissue, but immediately round the vessel, were fibres running parallel with it. In longitudinal sections, the tumour was seen to consist of very delicate, sharply defined, wavy fibrils or bundles of fibrils, running parallel with the long axis of the tumour, and forming elongated meshes with fusiform cells abundantly distributed between them; these cells were most abundant round, but not limited to, the vessels, which were less conspicuous than in the transverse sections. There were no signs of the appendages of the skin in the tumour, but outside it, the hair follicles, sweat and sebaceous glands, were copiously infiltrated with round cells, obscuring or even breaking up their structure. The vessels also for a considerable distance, both

* *Brit. Med. Jour.*, September 18th, 1886, p. 544.

beyond and below the tumour, reaching into the fat, were also surrounded by round cells, were dilated, and their walls more or less infiltrated. In many of the sweat coils in the fat, there was proliferation within, and infiltration between the acini.

The above observations show that the papillæ may be present over scar keloid, as well as over spontaneous; and since Babes has shown that they may be absent in the spontaneous, and others have demonstrated their absence in the scar form, it is obvious that no argument, as to the origin of the tumour, can be founded on the presence or absence of the papillæ or rete cones. Leloir, however, still upholds Kaposi that this is a valid mode of distinction.

Diagnosis.—An apparently spontaneous scar-like tumour, with lateral claw-like processes, forming over the sternum or neighbourhood, is so distinctive that error is scarcely possible. Whether arising on a scar or not, keloid differs from a *thickened cicatrix*, by its extension beyond the limits of the original scar. The diagnosis between spontaneous and *scar keloid* is scarcely worth making; it generally depends upon the patient's statement as to its origin. In multiple spontaneous keloid, like de Amicis' and Vidal's cases, symmetry in the arrangement of the tumours would be an important distinction.

Prognosis.—Spontaneous involution is not so rare as is usually stated; it is more likely to occur in the young, when the tumour is certainly of scar origin, and some say, in syphilitic scars, than when apparently idiopathic. As a rule, the tumour is slowly progressive up to a certain point, and then remains stationary for an indefinite time.

Treatment.—This is unsatisfactory; removal, however obtained, is almost invariably followed by return of the tumour. A very wide incision, so as to get beyond the diseased vessels, offers the best chance of success. Morphia or cocaine injection is sometimes necessary when the tumour is very painful; belladonna or other anodynes locally applied may sometimes be desirable. Quinine is recommended also for the pains, but is of doubtful utility; absorbents, both external and internal, are useless, but Verneuil is much in favour of pressure, and has even cured cases with the elastic bandage. Care must be taken to effect the pressure without friction, or the growth will increase. Vidal has produced great improvement, and even disappearance of the tumours, by multiple, deep linear incisions, mincing it up so as to divide the vessels as thoroughly as possible. The operation has to be repeated many

times, but from the first there was complete relief to the pains and irritation. Hardaway and Brocq advocate electrolysis by means of needles, this also evidently acting by occlusion of the vessels. The current should not be strong and the needle not kept in long, or aggravation may ensue.

FIBROMA.*

Deriv.—Fibra, a fibre.

Synonyms.—Fibroma molluscum ; Molluscum fibrosum ; Molluscum simplex ; Molluscum pendulum.

Definition.—Soft tumours, due to hyperplasia of the connective tissue of the deeper layer of the corium, and of the subcutaneous tissues.

Fibroma Simplex. *Synonym.*—Acrochordon. Soft warts, "verrues charnues," are terms applied to the very common, from pin's-head to pea-sized, soft, pedunculated, vascular, and mole-like excrescences, which with their relics, in the shape of the empty hernia-like sacs of skin, from which the contents have disappeared, are frequently seen upon the face and between the shoulders, and less frequently elsewhere in degenerated skins, chiefly of elderly people ; but this is not the kind to which the term **Fibroma** is usually applied. This is a much rarer condition, only amounting to 9 in 16,863 American cases, and 1 in 10,000 in my own and McCall Anderson's cases, though this probably under-estimates the frequency, as such cases very often go to the general surgeon.

There are three varieties of this form :—1. Multiple small soft tumours, in which the surface of the skin is almost unchanged ;

* *Literature.—Med.-Chir. Trans.*, vol. xvi., Murray's and Pollock's cases, with coloured plates and photos ; ditto, vol. xxxvii., p. 155, V. Mott's cases, five cases with two portraits, small tumours. *Cat. of Coll. Sur.*, Derm. Series, No. 450 to No. 463. *Cat. of Guy's Hosp.*, skin models 497 to 501. *Clin. Soc. Trans.*, vol. xiii., p. 166, Sangster's case, engravings, histology, and many references ; ditto, vol. vi., p. 160, and vol. viii., p. 138, G. Fritsche's. *Hutchinson's Lectures*, "Rare Diseases of the Skin," p. 196. *Path. Soc. Cases*, vol. xvi., Wright's case ; vol. xxx., Wood's case by R. Royes-Bell ; vol. vi., Beale's. *Skin Diseases in India*, Fox and Farquharson's Rep., App. VI., p. 155 ; nine cases by Wise of Dacca, etc. R. W. Taylor, "Molluscum Fibrosum, and its Relation to Acrochordon and Keloid.," *Jour. Cut. and Gen.-Ur. Dis.*, vol v. (1887), February and May.

2. Small tumours like the first variety, with large pendulous tumours (fibroma pendulum); 3. Fibroma pendulum without other tumours.

Symptoms.—The tumours which constitute this affection are for the most part roundish or teat-shaped; they may be firm in parts, but are generally lax, so that the contents can, when pinched up, be rolled between the fingers. The skin over them is either tense or lax, usually smooth, and of normal colour and surface, though sometimes bluish or pinkish from vascularity, while those with constricted base are of a brownish or brownish-red hue; a hair sometimes, or one or more comedones, conspicuous from their size, are to be seen in the centre. In almost all other respects, they present great variety. In number, they may be from one or two up to hundreds, and even thousands;* in size, they are from a pin's head to an egg or an orange, or larger, but for the most part they do not exceed a walnut. They are round, oval, pyriform, or polypoid; some are imbedded rather deeply under the skin, and are to be felt rather than seen; others are distinctly raised, but still sessile, and with a broad base like a mollusc; while others again have a pedicle, which becomes narrow eventually, and the tumour then hangs flabbily down, like a polypus. The tumours are quite painless, and give rise to no inconvenience except such as may arise from their position, unsightly appearance, or numbers.

The trunk is the part of the body where they are most constant, in front more than at the back, while there are only a few on the sides. Next in frequency is the head, especially the occiput, then the face and limbs, but they are seldom numerous on the latter, and they are rare on the palms and soles, where they become flattened by pressure. In a few cases, the mucous membranes are involved,† especially the lips, gums, hard palate, and tongue.

While in a small proportion of the tumours the contents become absorbed, and leave an empty sac, as a rule, they gradually increase in number and size, but do not shorten life in any way. Sometimes when they have been absorbed a pseudo-tumour is left, the skin projecting and forming a slightly translucent bluish tinted

* See woodcuts of Perry Dunn's case, *Med. Press and Circular*, December 17th, 1890.

† In Walter J., U.C.H., there was a tumour on the buccal mucous membrane, and two on the side of the tongue.

tumour, which under pressure with the finger disappears below the surface like a soft air-bladder. (See also pp. 428 and 614.)

Irregular patches of brown pigment are frequently seen scattered about the body surface between the tumours, and there is freckling also, and in one of my cases, the whole face had become darker.

Variations.—Neuro-fibromata co-existed in a case of Atkinson's* of Baltimore, of von Recklinghausen's,† and of Payne's,‡ and keloid has followed excision in several instances, including one of my own (see Keloid). When the tumours, instead of growing in their usual slow, almost imperceptible manner, develop rapidly, the skin containing them becomes vascular, red, purplish, or mottled, then it excoriates, discharges, and ulcerates at the apex, and even sloughing may ensue; and when the growth is so rapid as to stretch and occlude the blood vessels at the neck, which supply the tumour, the whole thing may slough off. Injuries such as friction, blows, etc., may produce similar results.

These conditions represent some of the cases of the **Fibroma fungoides** of Tilbury Fox,§ but a separate name is superfluous. He relates four cases, one of which was one of Murray's,‖ which present so many peculiarities that I append an abstract of them. The three youngest out of a family of four were affected; in the first, a girl of seven, the disease began during the first dentition, in the gums, which were hypertrophied with papillomatous, fungoid growths so as to nearly bury the teeth; there were some warty, and many of the usual growths elsewhere, while the terminal phalanges of the fingers, and, to a less degree, the toes, were much enlarged with smooth, solid, nodular outgrowths, translucent in parts, so that bluish-red, dilated vessels showed through like a nævus, while other parts were hard from thickened epidermis. There was a large ulcerating tumour on the back of the head, and an exostosis on each tibia. In the other two children, the disease began when they were three months old, and was less advanced; they all gradually became imbecile as they

* *New York Med. Jour.*, December 1875,—two cases of molluscum fibrosum.

† *Ueber die multiplen Fibrome der Haut*, etc. (Berlin: 1882),—an able and important monograph.

‡ *Clin. Trans.*, vol. xxii., 1889.

§ Tilbury Fox, p. 352. Case II. was probably the mycosis fungoides of French authors (see that disease).

‖ *Med.-Chir. Trans.*, vol. lvi., p. 235, with plate.

grew older. The parents were cousins, and their early married life was under bad hygienic conditions.

In the cases with **pendulous tumours**, which are much rarer, in addition to the ordinary tumours, there are others much larger, consisting of huge masses sometimes weighing many pounds. These tumours are always very lax; they may have a broad attachment, but always much less than their diameter, and they hang down in pendulous masses, often in over-lapping folds like a coachman's cape, and between these folds, there is often a serous fœtid discharge. They feel simply like masses of skin and fat, and the skin, besides being lax, is coarse, often pigmented, and covered with plugged sebaceous orifices.

The favourite sites for the origin of these tumours are the occipital region, the sides of the neck, the face, arms and axillæ, breasts, flanks, buttocks and thighs, and, according to Alibert, the eyebrows, abdomen, and labia.

Instances of these remarkable tumours, in association with ordinary fibroma, are related by Bell,* Alibert,† Virchow,‡ Wright, Pollock, Royes-Bell, and many others, scattered through the medical journals.

An extraordinary case of the kind was brought to the Pathological Society by Treves. I had an opportunity of examining the patient there, and at a show, where he was exhibited as an "elephant man." The bulk of the disease was on the right side; there was enormous hypertrophy of the skin of the whole right arm, measuring twelve inches round the wrist and five round one of the fingers, a lax mass of pendulous skin, etc., depending from the right pectoral region. The right side of the face was enormously thickened, and in addition there were huge unsymmetrical exostoses on the forehead and occiput. There were also tumours affecting the right side of the gums, and palate, on both legs, but chiefly the right, and over nearly the whole of the back and buttocks; the skin was immensely thickened, with irregular lobulated masses of confluent tumours, presenting the ordinary molluscous characters. The left arm and hand were small and well formed. The man was twenty-five years old, of stunted growth, and had a right

* John Bell, *Principles of Surgery* (1808), vol. iii.

† Alibert, *Monographie des dermatoses*, p. 796 (Paris: 1832), with plate.

‡ Virchow, *Die Krankheiten-Geschwülste*, vol. i., p. 325.

talipes equinus, but was fairly intelligent. The disease was not perceived much at birth, but began to develop when five years old, and had gradually increased since; it was, of course, ascribed to maternal fright during pregnancy.

This condition may also occur without any of the small tumours, is more diffuse than the last class, and should then be called **Fibroma pendulum** instead of **Dermatolysis**,* or lax skin, as is usually done; it is often described as a separate disease, but it is only an extreme end of a chain, in which the earlier links are wanting. The following case, which came under my observation some years ago, is a good example :—

The patient was a storekeeper on a ship, æt. thirty-nine, and had fallen down the ship's hold fourteen years previously; a large abscess formed on the buttocks, and he was paraplegic for eight months; the abscess healed up, but continued to break out again at intervals. The buttocks began to increase in size two years after the accident, beginning at the sinus opening, and had gone on growing ever since; the leg began to enlarge ten years after the accident. Enormous pendulous folds of skin and subcutaneous tissue overlapping like flounces, depended from the twelfth rib to about half way down the thighs, forming huge rolls of lax tissue, which were freely movable in any direction, and always took the most dependent position; there was a similar condition of the tissues of the right leg below the knee. The skin over the tumours was healthy-looking, but more pigmented than the rest of the body, and sensation was unaltered. The man was of short stature, but intelligent, and his general health was good, except that he had shooting pains in the right leg, and in various parts of the tumour. There were no ordinary molluscum tumours, but from time to time, small tumours, the size of a bean, appeared in the abdominal wall; the skin over them was reddened, and they did not burst externally, but, when he squeezed them, they ruptured internally, and disappeared at once. Sensibility was not diminished over the tumour as it is in some cases.

In another, a somewhat similar condition of hyperplasia of the subcutaneous tissue, but less developed, and not so lax, was limited to the palms, soles, sides of neck, nose, and tonsils, in the last part necessitating excision. This condition supervened after scarlet

* Valentine Mott called these tumours Pachydermatocele, but this term has also been used for elephantiasis arabum.

fever, but there was no evidence of albuminuria * either past or present. These cases, it is to be noticed, came on later in life, but differ, only in their origin, from the others which begin in early childhood, such as Valentine Mott's or Fritsche's cases.

There are also congenital cases where there is loose attachment of the skin without hypertrophy, and it is to these that the term **Dermatolysis** should be restricted. In 1657, a Spaniard,† Georgius Albes, is reported to have been able to draw the skin of the right pectoral region to the left ear, or the skin under the chin over the face to the vertex, while the skin over the knee could be extended half a yard, and it retracted to its normal position, and was not in folds; this mobility was limited to the right side. An "elastic skinned man" was exhibited in London in 1882. Another case of a young man, æt. nineteen, is reported by Seiffert, who examined some skin from over the left second rib, and found that, contrary to Kopp's supposition, the elastic fibres were quite normal, but that there was a transformation of the connective tissue of the dermis into an unformed tissue like a myxoma, with total disappearance of the connective-tissue bundles. This brings it into relationship with fibroma, in which this ill-formed gelatinous connective tissue is a marked feature. Laxity of the skin after distension is often seen in multipara, both in the breasts and abdominal walls, from obesity, etc., and to a slighter extent in the degenerated skin of old age, but in all these the skin falls into folds.

Etiology.—Heredity ‡ and, occasionally, congenital predisposition are the only positive causes assignable.

Fibroma occurs in both sexes and in various races, beginning

* Shown at Clin. Soc. by Messrs. Ballance and Hadden, January 25th, 1885.

† Related in Job a Meek'ren's *Observationes Medico-Chirurgicæ* (Amstel.: 1682), chap. xxxii., "De Dilatabilitate Extraordinaria Cutis," with engraving. Quoted in John Bell's *Surgery*, 1815, vol. iii., p. 36, and in *Coll. of Surg. Museum Dermatological Catalogue*, p. 116.

‡ Virchow's cases, quoted by Hebra, vol. iii., p. 341, father, grandfather, brothers, and sisters affected; Ochterhony's case, *American Arch. Derm.*, July 1875, of a negro woman and her child; and Atkinson's cases, *New York Med. Jour.*, vol. xxii. (1875), p. 601, of a brother and sister affected, who said that their father had some kind of tumours, may be referred to. See also Wise's cases in Fox and Farquharson's *Tropical Skin Diseases*, App. VI., p. 108, and Wagner's *General Pathology*, p. 383, in which a father and son were affected.

often in the early months of life, and nearly always in childhood, and, having no effect upon vitality, may be seen at every age, and in all stages of development, though the tumours are seldom large in early life.

Fibroma pendulum alone is more frequently acquired in later life, and in the case related, was the result of injury and suppuration; instances of localised fibroma, the result of injury, have also been related by Schwimmer and by Taylor of New York; but the cause cannot be traced in most cases. The Chinese are said to be more liable to it than other nationalities, and in them the tumour may attain to an enormous size.

All Hebra's cases were in individuals "stunted in bodily growth, and of more or less defective mental capacity." This is true of the majority of cases, but there are many exceptions.

Pathology.—Nothing is certainly known of the pathology of the disease, beyond the fact of the tumours being due to a hyperplasia of connective tissue, of either the deep part of the corium or subcutaneous tissue, or both. The presumption is in favour of this being mainly due to the obstruction of the superficial lymphatics, at least in the diffuse cases, but we are entirely ignorant as to how the obstruction arises. This theory, and many points in its anatomy, bring it into pathological relationship with elephantiasis arabum, though there are many striking clinical differences.

Anatomy.—The anatomy has been studied by many observers, myself included, of whom Rokitansky, Wedl, and Virchow, among earlier, and Neumann, Fagge, Sangster, and Recklinghausen, among later investigators, may be especially mentioned. They all agree as regards the anatomy, but there is some difference of opinion as regards the starting-point of the tumours; thus Rokitansky considers it to be in the deep part of the corium, Virchow in the connective tissue of the fat, and Fagge and Sangster in the connective tissue round the hair follicles and sebaceous glands: the last idea is, at the most, only partially true, since tumours occur where there are no sebaceous glands, such as on the palms, soles, and hard palate. In many small tumours, a sebaceous gland or hair follicle forms the centre, while in the large or older tumours, these structures have atrophied or disappeared. Even Virchow admits that some tumours are met with between the layers of the corium, while it is undoubted that, in the majority of the tumours, where they have a broad firm base, the pedicle goes into the fat. On the whole, then, it is probable that hyperplasia of all, or any of these structures may occur, and that we are not justified in restricting it to one only.

On section, the substance of the tumour is found to be made up of more or less perfectly developed fibrous tissue, from which a small quantity of

clear, yellow fluid can be pressed out. In a medium-sized tumour, the fibrous tissue is firmest and most developed at the base and in coarse bundles; in the centre, it is loose and gelatinous, and at the periphery fine and delicate, like the normal corium, of which the papillary layer and its epidermal covering are quite unchanged. It must not, however, be supposed that there is any abrupt transition from the firm to the gelatinous tissue. In a very young or small tumour, the whole contents may be gelatinous, while in an old or very large one, there will be much perfect and compact, but coarse, fibrous tissue, with fine fibres between the meshes, but very little gelatinous tissue. Between the layers are cells with large, strongly refracting nuclei, and the cells may be in strata, foci, or scattered between the bundles; they are most abundant where the gelatinous tissue predominates, and are therefore comparatively scanty in

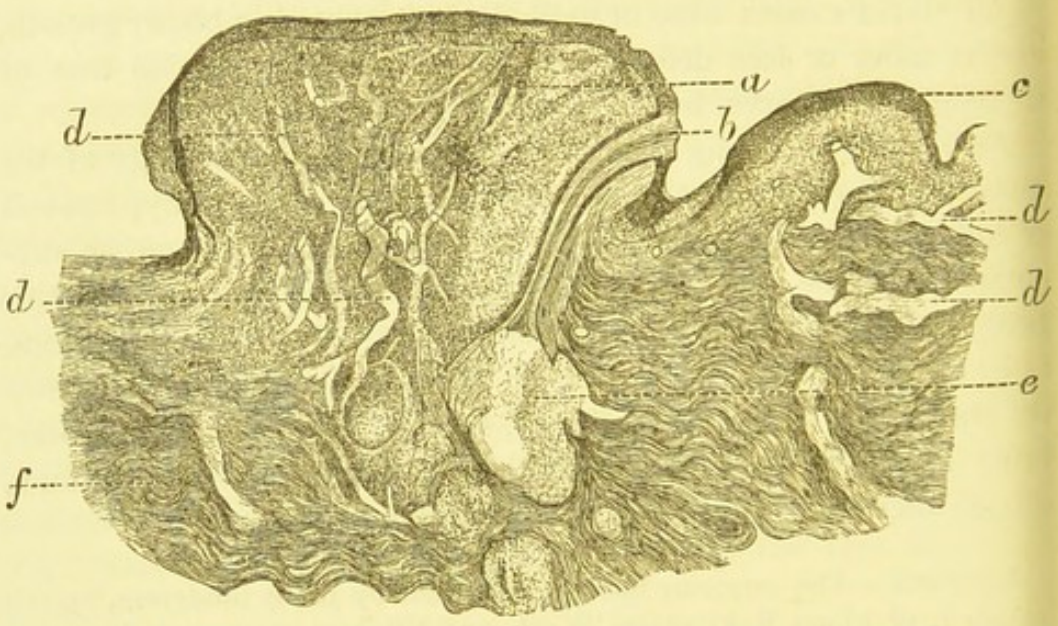

Fig. 47.—A pin's-head-sized tumour of fibroma × 50, composed of gelatinous tissue. *a*, portion of sweat duct; *b*, hair follicle; *c*, another tumour; *d*, *d*, large vessels supplying the tumours; *e*, sebaceous gland; *f*, fibrous tissue of corium.

the old tumours. Large vessels enter and leave the tumour at the base, and terminate in fine capillaries at the periphery. The condition of the glands has already been alluded to.

Diagnosis.—When there is a large number of soft sessile or pedunculated tumours on the trunk, there can be no difficulty about the diagnosis.

Multiple fatty tumours have but slight resemblance; they are flatter, generally lobulated, never pedunculated, and do not project in the globose way that the majority of the fibroma tumours do.

From *soft moles*, the fact of moles being congenital would be sufficient; they, too, are nearly always pigmented. When few

in number, the tumours which grow between the shoulders in elderly people are very like them, and for practical purposes it may be considered that they are the same. One difference is generally present in the latter, viz. : an alteration in the epidermis, which only occurs in fibroma when it has been inflamed.

In *sebaceous cysts*, the sebum can be pressed out in large quantities, and the sac partly emptied, while in fibroma a large comedo is the most that can be squeezed out, and often nothing at all.

Prognosis.—The tumours will almost certainly increase in number and size, though generally very slowly. They are never dangerous to life, merely inconvenient from their size and position.

Treatment.—Those that are pedunculated can be removed by ligature, the galvanic cautery, or the écraseur. The rest may be excised if they are not too numerous, but the removal must be complete. In the dermatolytic cases, where a part only of a tumour has been excised it has regrown ; but where complete ablation has been practised, there have been several successful operations without recurrence, even with very large masses, such as Mott's, Kosinski's (35 lbs.), Pollock's, Stokes', John Wood's cases, and others. Care should be taken to secure the vessels as, or in the case of the larger vessels before, they are cut, as the bleeding may otherwise be very formidable.

MYOMA.

Deriv.—μῦς, a muscle.

Synonym.—Muscle tumour.

Besnier,* who has especially studied this species of tumour, divides them into two classes : simple or liomyomas, which are small and multiple, and dartoïc myoma, a large single tumour, chiefly interesting to the surgeon. Only nine cases of the small

* Besnier, "Les tumeurs de la peau, les dermatomyomes," etc., *Ann. de Derm. et de Syph.*, 1880, p. 25, the best account of the subject. *Ann. de Derm. et de Syph.*, vol. vi. (1885), p. 322. In Kaposi, Besnier-Doyon, vol. ii., notes, p. 346, he summarises all the cases to date, and gives the references for all the above-mentioned cases, except Hardaway's. *Amer. Jour. Med. Sciences*, 1886, p. 511, with woodcuts, discussion on it reported in *Amer. Jour. Cut. Dis.*, vol. viii., p. 315. Hess, *Virch. Archiv*, Bd. 120, p. 321 ; and Lukasiewicz, *Archiv f. Derm. u. Syph.*, vol. xxiv. (1892), p. 33, with coloured plate.

multiple variety are on record,—by Verneuil, only discovered in the cadaver, Besnier, Arnozan, Brigidi, Marcacci, Hardaway, Jadassohn (two cases), Hess, and Lukasiewicz. Excluding Verneuil's case, of which there was no clinical history, six out of the other eight were females. They ranged from twenty-three years to sixty. They developed very gradually, spread over many years, and began as a lenticular spot,—in Brigidi's case an ecchymotic spot. This developed into a papule, then a nodule. Most of them were from a split pea to a bean in size, but some smaller or larger, pink, red, or normal in colour, and elastic to the touch. They developed in crops and formed patches of tumours, without symmetry or definite arrangement, generally limited to one or only a few regions, in different cases appearing on the trunk and arms, the back, the nose (Hess), the thigh and leg. Nearly all were more or less painful, some only on pressure; in others, the pains were spontaneous and severe, sometimes radiating and paroxysmal, chiefly at night. These pains came on at short or long intervals in different cases. Some of the tumours undergo involution, and some vary slightly in prominence at times, but as a whole they tend slowly to increase in number, size, and painfulness. They are limited to the cutis, and consist chiefly of smooth or unstriped muscular fibres surrounded by elastic tissue; they are derived probably from the arrector pili muscle, and contain either sweat, sebaceous, or hair follicles. The diagnosis may be easy or difficult, but their being massed together and their colour and painfulness are their most distinctive features, and would separate them from xanthoma tuberosum or small keloids. The equally rare lymphangioma tuberosum multiplex presents very similar tumours, but they are not painful; Lesser * diagnosed one case of lymphangioma as dermatomyoma, but the microscope showed its real nature. That it is often no easy matter to decide the nature of cutaneous and subcutaneous nodules is shown by the observations of Chantelux. In four cases in which nodules were excised and examined, one was a papillary fibroma of a sweat gland, another was a tubular epithelioma of a sweat gland, a third was a subungual corpuscular neuroma, while the fourth was a fibromyoma of the inner side of the ring finger. When not too numerous and over too wide an area, they may be excised without fear of return.

The solitary tumours are more common, and have been described

* *Virch. Archiv*, Bd. 123, Heft i.

by Virchow, Förster, etc. They may be sessile or pedunculated, from an almond to a walnut in size, as a rule, but may be as large as an orange. They occur chiefly on the mammæ and the male and female genitalia (in Passalacqua's it was on the crest of the tibia), are contractile on exposure to cold, vascular, slow-growing tumours, and usually painless, but were intensely painful in Virchow's case. They consist mainly of involuntary muscular fibres, but may contain much fibrous tissue and form a **fibromyoma** or be highly vascular, cavernous and erectile, constituting **angiomyoma**, or, if the lymphatics are involved, **lymphangiomyoma**. Ablation is the only remedy.

NEUROMA.

Deriv.—*νεῦρον*, a nerve.

Synonyms.—Nerve tumour; *Fr.*, Névrome.

The tumours of the skin, thus designated, are really fibroneuromata, and consist, for the most part, of firm connective tissue, starting from the neurilemma, with non-medullated fibres over, but seldom within, them. Only two instances in which they affect the skin primarily are on record, viz., by Duhring and Kosinski, the "painful tubercles" of Wood and other so-called instances of neuroma and fibroneuroma of Recklinghausen, Köbner and others, being really subcutaneous; and in Atkinson's, Recklinghausen's and Payne's cases were associated with fibroma.

The two cases alluded to were both men: Duhring's,* æt. seventy, and Kosinski's,† æt. thirty. In the first, they had been developing for ten years, in the second for fourteen. They affected in one case, the left scapular region and the arm to the elbow—*i.e.*, branches of the circumflex chiefly—and in the younger man, the outer and upper two-thirds of the thigh and the buttock—*i.e.*, the small sciatic and external cutaneous. The tumours were flat, firm nodules, from a pin's head to a split pea or a hazel nut in size, confluent and disseminated, imbedded in the skin itself, and therefore movable only with it. The skin between the nodules was normal, when pain was absent. The tumours were not painful at

* "Case of Painful Neuroma of the Skin," *Amer. Jour. Med. Sciences*, October 1873.

† "Neuroma Multiplex," *Centralblatt für Chirurgie*, No. 16, 1874.

first, but became so afterwards, especially on pressure, which, in Kosinski's case, sent the pain radiating in all directions; while, in Duhring's, violent paroxysmal attacks of pain, shooting down the arm, occurred, during which the affected area became hotter and violaceous in colour. In his case also, there was slight scaliness over the nodules. Comparison with Hardaway's case of multiple myomata shows great clinical resemblance. In both instances, immediate relief from the pain was obtained, by removing a portion of the nerve supply, the brachial plexus, and small sciatic respectively, which was followed by gradual subsidence of the tumours.

NÆVUS VASCULARIS.

Synonyms.—Nævus vasculosus; Nævus sanguineus; *Ger.*, Gefässmal.

Definition.—A congenital overgrowth of cutaneous vascular tissue.

Vascular nævi are divided into capillary or cutaneous, and venous or subcutaneous, but the latter may involve the skin as well.

Symptoms.—They present immense variety in size, from a pin's point up to a large tract, involving the greater part of a limb or region.

They are nearly always flattish, but may be on the level of the skin, or more or less raised above it; they are roundish or irregular in shape, of a uniform or lobulated surface, this depending upon whether they consist of capillaries, or large veins, or vascular sinuses and the amount of intermediate connective tissue; their colour is from a bright red to a deep purple.

The most common seat of the **capillary nævi** is on some part of the face, head, neck, or arms, but they may come in other places. They may be very small at birth, and increase up to the size of a crown, or less; and may then either remain stationary for the rest of life, or gradually undergo involution and disappear, leaving atrophic scars, either white or pigmented. According to Depaul, one-third of the children born at the Clinique de la Faculté de Médicine at Paris have them at birth, but most of them disappear within a month; but few authors go so far, either as to the frequency of their occurrence or their disappearance.

The capillary nævus is the most common, and is usually moderately elevated and of bright colour. Another form is of a diffuse, very slightly, if at all, raised, red, or purplish-red patch or patches on some part of the face, often involving the whole of one side; this is the well-known "**port-wine mark**," or nævus flammeus, the Feuermal of the Germans and Tache de feu of the French. In one of my cases, it occupied all the right side only of the face, but on the trunk, extended over the chest on both sides to the level of the nipples, and over the extensor aspect of both forearms and hands.

The **venous nævus** is more raised than the capillary, often clearly defined, convex, smooth, or lobulated, of a dark purple colour, very soft, inelastic, and compressible, unless inflamed and containing cysts, but filling again immediately. Such nævi occur chiefly on the lower part of the body, about the back, nates, pudenda, and lower limbs, but are not very unusual on the neck, beneath the lower jaw. They vary from half a walnut to an orange in size; the skin over them may be normal, or there may be capillary dilatation here and there. Some of these nævi are turgescent, erectile, or pulsating.

Anatomy.—Capillary nævi are simply capillaries increased in size and number, and closely aggregated.

Venous nævi are circumscribed and composed of thin-walled veins and sinuses, bound together with delicate connective tissue, and a few small arteries which run directly into the venous sinuses, without the intervention of capillaries.

The *diagnosis* offers no difficulty. The *prognosis* is uncertain, many of the capillary form disappearing spontaneously, but many more increase in size up to a certain point, and then remain unchanged. Others ulcerate spontaneously, beginning in the centre and spreading towards the periphery. There is no pain, and the ulceration is indolent and superficial, with scanty viscid discharge, which dries up into a scab, and when this comes off a thin scar replaces the nævus tissue; in other words, the nævus is cured. According to Stephen Paget, those nævi which are only slightly raised, ill-defined, and pale, are the most likely to ulcerate. The port-wine mark is usually stationary from beginning to end, but I have known it increase, even in adults.

Treatment.—Those that are small and superficial, not in a conspicuous position, and not growing larger, may be left alone and

there is a good chance of their disappearing spontaneously, and this tendency may be assisted by painting on collodion or the liquor plumbi subacetatis, collodion, from its compressing action, being preferable, or, if over a bony part, mechanical compression may be employed. Large port-wine marks cannot be successfully dealt with. B. Squire claims that repeated linear scarification will remove them without subsequent scarring; but neither have others obtained such results, nor have two of his own cases that I have seen been successful, one after more than fifty operations showing no improvement the mother thought, though where nitric acid had been applied there were white scars. Duhring gives very much the same verdict with regard to Sherwell's multiple puncture method. In the extensive case mentioned above, I obtained some improvement by means of electrolysis, passing a fine needle under the skin in closely arranged parallel lines. The methods employed to remove ordinary nævi come into the following categories:— 1. To produce plugging within the vessels by exciting inflammation or by electrolysis; 2. To destroy the growth by caustic or the cautery; 3. To remove it by the knife or ligature.

When the nævi are small, or in such a position on the face that the kind of scar is of importance, inflammation, electrolysis, or excision may be employed. One method is by vaccination, which answers well for nævi of moderate size, several punctures being made carefully, so that the lymph is not washed out by the bleeding. Another plan is to pass some fine silk threads through it in various directions, until some inflammation is excited, repeating this as often as it is necessary for the occlusion of all the vessels. Injection with perchloride of iron, chloride of zinc, or tannin is effectual, but dangerous, unless great care is employed to prevent any coagula getting into the general circulation. This may be done by isolating the growth by a ligature applied for a few minutes before and after the injection. Electrolysis is, however, preferable, as it is never advisable to run the smallest risk for such a trivial cause.

When electrolysis is employed to coagulate the blood only, the positive pole is applied by means of a flat plate of metal, covered with chamois leather well wetted with brine, and bound on to the neck or limb, while a needle attached to the negative pole is introduced into the nævus. From three to eight cells are sufficient for coagulation, but many introductions of the needle are required. Where actual direct destruction is desired, from fourteen to twenty

cells are necessary. The needle should be passed in several directions below the base of the tumour, and it should be covered with gutta-percha at the upper part, where it is in contact with the skin, to prevent ulceration. Some advocate introducing both poles into the tumour, but this is unnecessary; but if employed, the needle of the positive pole should be a gold one. The proceeding is very painful with strong currents, and with weaker ones, many repetitions of the process are generally necessary. In any case, an anæsthetic would be required, except for adults.

Superficial nævi of moderate size are often very conveniently attacked by the strongest nitric acid, or the acid nitrate of mercury. This last is a superficial caustic, and leaves a thin white cicatrix. Richardson strongly advocates sodium æthylate to be painted on to "destroy nævi painlessly." I regret to say that it has not done all that is claimed for it in my hands. It was very painful, required many applications, suppuration was produced, and although it eventually destroyed the growth, the result was no better than nitric acid, and the process was more prolonged. The æthylate must be freshly and carefully made, great care must be exercised to keep the part quite dry, and the crust should be allowed to loosen spontaneously. Another very good plan for superficial nævi is the "Marshall Hall" method. A cataract needle is introduced close to the edge of the growth, and is pushed towards the opposite side; the needle is then nearly withdrawn, and pushed across again about one-sixteenth of an inch from the first one, and so on in radiating lines until the whole is traversed; cicatrisation sets in gradually, and spreads over the whole growth, a few cases only requiring a second operation after some months.

For more projecting nævi, my colleague, R. W. Parker, strongly recommends excision, and Lister has removed very large nævi by this method. Others prefer the ligature, as a rule, for nævi of large size. A large nævus needle is passed under the growth, and the tumour somewhat raised; another, armed with whipcord attached to it by a piece of silk, is passed under this. The armed needle is then withdrawn, and the cord drawn through with the silk; the other needle is now threaded, and the cord drawn through as it is withdrawn. The looped ends are now cut, and the cord of one pair tied tightly with the adjacent cord of another pair, so as to divide the growth into quarters. The skin must be divided by a scalpel, to allow the ligature to sink into the groove

thus made, as the strangulation is rendered more complete and less painful. Other methods are described in surgical works. Some recommend puncturing in several places with the Paquelin or the galvano-cautery. Coates of Salisbury claims that filling the tumour by injecting tr. iodi into its substance is efficacious, and free from the dangers of perchloride of iron. On the whole, for most superficial nævi I think best of electrolysis or the application of the fuming acid nitrate of mercury; for those more projecting, where the position and size permit, Parker's plan of excision, now that primary union can be insured, gives the best cosmetic result, as a linear scar only results. Where expense is no object, and the repetition of the operation is not contra-indicated, electrolysis may be first employed, by which the vessels are occluded, but a small fibrous lump is left, which may be excised with a smaller incision than would have been required if cut out at first. If the position or size render excision unsuitable, either ligature or the galvano-cautery would probably be the best procedure.

No doubt, if Coates' iodine injection does all he claims for it, it would be very valuable, but I have no personal experience of it. Most of the methods would be advantageous under particular circumstances, of which the operator must form his own judgment, from what has been said.

TELANGIECTASIS.

Deriv.—τέλος, the end; ἀγγεῖον, a vessel; and ἔκτασις, extension.

Definition.—Acquired vascular dilatations.

Symptoms.—Telangiectasis differs mainly from nævus vascularis in its not being congenital. At the same time also, it is more often an enlargement of pre-existing vessels than a creation of new ones, and clinically only resembles the slighter forms of nævus.

One of the most common forms, is that which the older authors termed **nævus araneus**, or spider nævus. It consists of a central red, raised dot, from which fine lines radiate, with occasionally cross lines connecting the radiations, the whole forming a stellate patch about one-eighth of an inch in diameter. The prominence is an aneurismal loop of an arteriole. The radiating lines are the dilated venous radicles. The lesions are, as a rule, solitary or few

in number, occurring chiefly on the cheeks near the eyelids and the bridge of the nose. I have, however, seen them in enormous * numbers all over the face, below the forehead, and on the back of the forearms and hands in a girl of seven, in whom they commenced when five years old. Fresh dilatations were still appearing even at the age of fourteen; they gave a curious mottled look to affected parts. Most of these differed slightly from the above description, there being no central projection, merely fine red lines, branching out quite irregularly from mere dots to an eighth of an inch across. I have met with a similar case in a girl of ten, principally occupying the region between horizontal lines drawn across the eyebrows and the end of the nose; but there were signs of fresh ones on the lower part of the face and forearms.

In another case, that of a man, they were almost confined to the right side of the face, where they were in great numbers. These lesions, singly or in small numbers, are sometimes seen on the neck and chest, and other parts; they are most common in women and children with delicate skin, occasionally follow a slight injury, and have also been seen in a diffuse form after lightning strokes,† but, as a rule, are apparently spontaneous. Stellate telangiectases are part of the symptomatology of xeroderma pigmentosum. Another form, seen chiefly in the degenerated skins of dirty or old people, consists of slightly convex or flat, hemp-seed-sized spots, raised a little above the surface, of a uniform bright crimson, or, occasionally, of purplish hue, and looking like a blood extravasation, showing no indication of their structure to the naked eye, but really consisting of a tuft of dilated capillaries. They are chiefly seen on the upper part of the trunk, neck, and face, and were called **nævus sanguineus**, but the term "nævus" is a misnomer for non-congenital growths.

The only other condition that concerns the dermatologist is the dilatation of venules of the face, called **Rosacea**, or chronic venous congestion of the face, which is, as a rule, mixed up with acne, and is described with acne rosacea, but it may occur apart from

* A still more general distribution is recorded by Mandelbaum of Odessa (*Viertelj. f. Derm. u. Syph.*, vol. ix., 1882, p. 213). They were in a continuous network on the face, where it had been longest, but had begun as spots and papules, and were after nine years in that condition on the trunk and limbs.

† See a case by G. Boner of Duns, reported in the *Lancet*, with woodcut of telangiectases on the arm only.

that condition, as in people much exposed to the weather, such as seamen, coachmen, etc. It may occasionally occur after a single exposure to the sun, but, as a rule, it is the result of causes which lead to chronic congestion of the face or obstruction in the venous flow, whether central, as in weakly acting hearts, or peripheral, as in chronic chilling of the surface. The result is, that the venous radicles become dilated and visible on the surface, especially on the nose, cheeks, and chin. The further results are described in the third stage of acne rosacea. Schweninger has drawn attention to the occurrence of arborescent dilatations of the cutaneous vessels along the rib border of one or both sides in obese men with a feeble circulation.

Treatment.—By far the best treatment for the dilated vessels is occlusion by electrolysis, as described for removing superfluous hairs. In the so-called nævus araneus, the point of the negative pole needle is inserted into the central projection, and a current from three to five cells transmitted. Slight frothing ensues; the skin just round the needle blanches, while beyond, it is reddened. The needle must only be kept in three or four seconds, or there will be a mark. The dilated venous radicles may be occluded in a similar way, as described under acne rosacea.

ANGIOMA SERPIGINOSUM.

Synonyms.—Infective angeioma*; Nævus lupus.

Definition.—A disease in which minute vascular points are formed in rings or other groups, which spread at the borders, while fresh points are continually developing beyond them.

This disease is very rare, and was first described by Hutchinson. Only four cases are at present known,† the three other cases having been met with by Jamieson, Lassar, and Waren Tay.

* I have ventured to give another descriptive adjective than that of Hutchinson, since his word "infective" would have to be rendered "Contagiosum," and thus convey a false notion, which he himself did not intend, the word "infective" here only indicating the infective influence on adjacent tissues.

† All the cases are described in Hutchinson's *Archives of Surgery*, with coloured illustrations. In describing Waren Tay's case, he gives references to the rest. Vol. iii. (1891), p. 166, illustrated. Compare with plates xiii. and xiv.

The disease consists of minute, bright red, vascular points imbedded in the skin, "like grains of cayenne pepper." These are formed into small groups, which spread peripherally, clearing in the centre, and thus forming rings not exceeding half an inch or so across, but in the border, the vascular dot character of the components of the ring is always preserved. Fresh points are continually developing a little beyond the patches ("infective satellites," as Hutchinson calls them), and thus the process is continually repeated, and, the rings meeting, large areas of disease with gyrate borders are produced. Scattered "cayenne pepper" dots, and lines of them, are seen beyond the main patches, and the skin between the rings is generally pinkish in hue; in Tay's case, the ringed arrangement was but slightly indicated, and there was no definite grouping. The dots vary from the diameter of an ordinary pin's head to some so small as only to be visible with a lens. Most of them are bright, and pale on pressure, but the larger-sized ones are purplish in hue and often unaltered by pressure. In three out of the four cases, scarring was certainly absent, and Hutchinson was not sure about it in the fourth case. His case began at the back of the arm, and spread up and down the limb to the shoulder and to below the elbow. Jamieson's case began on the front of the right forearm, and spread over the front and back of the arm and forearm, up to the deltoid, and down to the radial side of the wrist and back of the hand, to the root of the thumb and forefinger. There were also several groups along the inferior margin of the fifth rib on the right side, from one inch inside the nipple, to the right border of the sternum. Lassar's case began on both cheeks and increased to the size of a florin; a few groups came on the ears, and later, on the right upper limb, and extended from the humerus to the back of the right hand in eight weeks. Tay's case began on the right calf, and spread nearly all over the leg, and another patch formed on the front of the thigh. The left limb was less affected. The disease tends to spread but very slowly, as a rule, though Lassar's case, as far as the arm was concerned, was a marked exception. There are periods of comparative quiescence and activity.

Etiology.—Three out of the four developed under two years of age, and all these three were girls. Jamieson's case developed in a boy æt. fifteen years after gymnastic exercises; Hutchinson's developed from a small port-wine mark soon after birth; Lassar's

case after convulsions connected with dentition; and Tay's case without apparent cause when two years old. It is clear, therefore, that a pre-existing capillary nævus is at most only a predisposing condition.

Pathology.—Its pathology is unknown. Hutchinson considers it a sort of lupus and allied to lymphangiectodes or lymphatic lupus, as he terms it, because both begin in early life, spread at the edge, and have satellites, and any disease with these phenomena come under his definition of the lupus family, but these views are not generally accepted as regards lupus in general. Lassar, however, described his case as a form of lupus erythematosus.

Anatomy.—Jamieson's case was examined by Edington, who found the epidermis normal, except that the interpapillary processes of the rete went deep into the corium. The vascular loops at the apices of the papillæ were dilated into wide spaces, some still with blood in them. Anatomically, he considered that the condition was that of a superficial nævus.

Diagnosis.—This can scarcely offer any difficulty. The commencement some time after birth at once shows it is no mere birth-mark, and its punctiform character in groups, rings, lines, or single dots, and tendency to spread in an annular manner, with the continual formation of flesh foci beyond the main patch, stamp it as something peculiar. The stellate telangiectases, which occur at all ages and may be very numerous, are distinguished not only by their branched character, but by the absence of any serpiginous tendency. Though compared by Hutchinson to lymphangiectodes, that only refers to the mode of development, as their physical characters are quite different, except that some telangiectases are often present along with the vesicles.

Treatment.—The treatment hitherto tried has been unsuccessful, the disease spreading in spite of the measures adopted. I should be inclined to try electrolysis along the border of the affected area, and so produce occlusion of as many vessels as possible along the spreading edge and in the outlying puncta.

ANGIOKERATOMA.

Deriv.—*ἀγγεῖον*, a vessel; *κέρας*, horn.

Synonyms.—Lymphangiectasis (Colcott Fox); Telangiectic warts (Dubreuilh); Lichen télangiectasique.

Definition.—A disease of the extremities characterised by warty-looking growths, which develop on dilated vessels in persons with a chilblain circulation.

This is a very rare and not very important disease, but with definite clinical characters. The first published case was by Wyndham Cottle.* A case of my own was alluded to under verruca in the first edition of this work, and cases have since been described in detail by Colcott Fox, Mibelli, Dubreuilh, Pringle,† etc. Mibelli's name is the one which has gained acceptance.

All the patients were, or had been, the subjects of chilblains, and dark spots the size of pins' points to pins' heads, evidently vascular, developed as an attack of chilblains was subsiding. These venous dilatations persisted for an indefinite time, and new ones formed winter after winter, with and without fresh chilblains. They were discrete at first, but most of them were irregularly grouped, and ultimately blended into a small patch from one-eighth to one-third of an inch in diameter, which became distinctly elevated above the surface into a small convex mass, and at the same time horny points developed amongst the vascular dilatations, giving the appearance of warts, with venous vascularity at and round the base, and telangiectic warts they were supposed to be, by myself and others, until their development was traced in other cases from venous points, and the hornification was shown to be a secondary feature. None of these lesions show the slightest tendency to spontaneous involution, but the larger ones persist with very little change, and fresh vascular points form each

* *St. George's Hospital Reports*, vol. ix. for 1877-78, p. 758, with coloured illustrations.

† Pringle has given a very complete *résumé* of the disease, with good coloured illustrations and bibliography (except Cottle's case) to date, in *Brit. Jour. Derm.*, vol. iii. (1891), p. 237, August, September, and October numbers. My own case was given in the November number.

winter and develop into the warty stage, or go to increase the size of adjacent warty lesions. These lesions occur on the fingers and toes, and on the parts of the hands or feet immediately adjacent, never extending much beyond the knuckles or roots of the toes. In one case, the ears were affected (Sangster). The palmar or plantar surface may be involved, but only to a comparatively trifling extent, nearly all the lesions being on the dorsal surface of the phalanges, and in a well-marked case all the stages of development may be seen at once. There are no subjective symptoms, but the larger ones bleed easily, and they are always worse in cold weather.

Etiology.—All the patients have been young, and the disease has dated from childhood. Most of them have been of the female sex, and all have been subject to chilblains, the lesions having always started immediately after an attack, and been aggravated each winter.

Pathology.—As a result of repeated chilblain inflammation, dilated vessels occur in the papillæ, accompanied by chronic inflammatory changes in the papillary layer, and overgrowth of the epidermic layers above them.

Anatomy.—This has been investigated by Colcott Fox, Mibelli, and Pringle. The observations of the last two agree in the main.

There was great thickening of the stratum corneum, stratum lucidum, and rete mucosum, the last chiefly at the margin of the diseased area, and in this layer, were large irregular lacunæ, some still with blood in them.

In the upper part of the papillary layer were copious leucocyte infiltration, increase of the fibrous tissue, and general dilatation of the blood vessels. The sub-papillary layer was only slightly affected in Pringle's case, but more so in Mibelli's; the latter's showed less leucocyte infiltration, and he thought there were dilated lymph spaces.

Diagnosis.—The occurrence of warty-looking growths with a purple vascular base, and accompanied by purple dots on the extremities and ears of a person with the chilblain circulation, is absolutely diagnostic. The mode of development of the warty lesions from the aggregated vascular points would distinguish them from true warts.

Prognosis.—Unless treated, the old lesions tend to persist for an indefinite period, and new ones form every winter. In one of Fox's cases, the lesions are said to have disappeared shortly before death from phthisis.

Treatment.—The most effectual treatment appears to be that successfully employed by Pringle, viz., electrolysis of each lesion, into which a needle attached to the negative pole is introduced, with a current of three milliampères, until coagulation of the blood in the vessels is produced. To prevent the formation of fresh lesions in the winter, general invigorative measures should be adopted, and the patients encouraged to take as much active exercise as their circumstances permit.

LYMPHANGIECTODES.*

Deriv.—λυμφαγγια, lymph vessels; ἔκτασις, dilatation.

Synonyms.—Lymphangioma circumscriptum (M. Morris); Lupus lymphaticus (Hutchinson); Lymphangioma capillare varicosum (Török); Lymphangioma cavernosum (Besnier); Angiome cystique (De Smet and Bock).

Definition.—A localised disease consisting of closely crowded, deep-seated vesicles connected with the lymphatics.

This is a very rare disease, which was first described by English authors. Tilbury Fox was the first, then Hutchinson (who has had three cases), Walsham, Hayes, Köbner, and myself

* *Literature.*—T. and C. Fox, "Lymphangiectodes," *Path Trans.*, vol. xxx. (1879), p. 470, with histology,—a complicated case. Hutchinson, "Lupus lymphaticus," two cases, *loc. cit.*, vol. xxxi. (1880), p. 342, with two excellent coloured plates and very good clinical account, with histology by Sangster,—these two and another are reproduced in plates xv. and xvi., vol. i., *Archives of Surgery*. Hutchinson jun., "Histology," *loc. cit.*, vol. xxxv. (1885), p. 467, with plate. Köbner, Berlin Med. Soc., 1883; reported fully in *Ann. de Derm. et de Syph.*, vol. v. (1885), p. 293. Morris's case, plate i., *International Atlas*. Noyes and Török have published an excellent *résumé* of cases to date, and an original microscopic examination,—cases 6, 7, 9, and 10 of their paper do not come into this category. *Brit. Jour. Derm.*, vol. ii. (1890), p. 359, and 1891, p. 8. Schmidt, *Archiv f. Derm. u. Syph.* (1890), p. 529, analysed in *Brit. Jour. Derm.*, vol. iv. (1892), p. 133. De Smet and Bock, *Lymph. Circonscrit.* (reprint, Lamertin, Brussels, 1891). Jamieson, *Edin. Med. Jour.*, September 1890, p. 269. My own cases will be published in my forthcoming *Atlas*. G. T. Elliot, *Med. Rec.*, May 16th, 1891, p. 561,—there were several groups on the right lower limb from the great toe, on which it began at the age of six years, up the leg to the thigh in the course of varicose veins. Kaposi-Besnier-Doyon, vol. ii., p. 378, notes by translators.

(two cases). Since then, cases have been published by Morris, Noyes and Török (Sangster's case), Schmidt, De Smet and P. Bock, Jamieson, G. T. Elliot, and Dale James. Tilbury Fox's and Besnier-Vidal's cases were complicated with venous nævus, Köbner's was described as a case of cavernous angioma, lymph-angioma, and neurofibroma, and in Dale James's case also, the vesicles were seated on a fibro-cavernous structure; the others were uncomplicated, and resembled each other very closely.

Symptoms.—The disease consists of minute, deep-seated vesicles, like frog-spawn. They are closely crowded together in irregularly outlined groups of from one-third to three-quarters of an inch in size, and these again are arranged irregularly with healthy skin between them, or with only a few scattered vesicles on it. They are usually in a single patch from one to three inches in diameter, or at least confined to one region, of which the following areas are on record: the face, lip, neck, deltoid and scapular regions, the arm, leg, thigh, and trunk. In a case of old lupus vulgaris in a young man, on the inside of the lower lip was a patch of vesicles exactly like the skin lesions described, with which several members of the Dermatological Society agreed. Schmidt described a similar condition on mucous membranes, also in a case of lupus vulgaris, but whether they are really identical with lymphangiectodes remains to be proved.

The vesicles are not of the ordinary kind, being deep-seated, with thick walls, and some of them are almost warty-looking. The majority are about the size of a small pin's head, but they vary from the smallest recognisable, up to a large hemp seed. They are either perfectly colourless, or have a straw or pinkish tinge, and if pricked, emit a clear, colourless fluid of alkaline reaction, containing a few lymph corpuscles. Some have vascular striæ or tufts over them, others have red dots, and others again evidently contain extravasated blood, the result usually of friction or other trifling injury. In one of Hutchinson's unpublished cases, nearly all the vesicles had vascular tufts obscuring the vesicular character. In one of my cases, these vessels were conspicuous during the development of fresh vesicles, and disappeared subsequently. There are no inflammatory or subjective symptoms. The disease is extremely chronic in its course, lasting for an indefinite number of years, if not interfered with, spreading slowly at the periphery by the formation of fresh groups of vesicles, and with great tendency

to recur after partial or apparently complete removal. In the second of my cases, æt. thirteen, the disease had only been noticed a month, and appeared on or near some scars produced by the removal during infancy of a congenital tumour, which the mother said was not like the present disease, but there must have been several growths, judging by the scars over the left ribs. Walsham's case was in the same position. In my other case, and those of Hayes, Morris, and Sangster, the disease was on the left side of the nape. It is a remarkable fact, that out of twenty cases, sixteen were on the left side, three on the right side (right shoulder, leg, and lower lip), and one in the middle line (chin).

Epstein * published a case of a woman, æt. forty, in whom the disease began at the age of twenty-four; it was situated on the vulva and pubes, and left buttock and thigh. When a vesicle was pricked, gelatinous fluid exuded for three or four hours. The vesicles also filled and ruptured spontaneously, and cloths placed over the disease became saturated three or four times a day, though the vesicles sometimes dried up for days. This case appears to be rather an example of lymphorrhagia, but is peculiar in many respects; morphologically, it resembles the other cases.

Etiology.—Sex appears to have no influence; nine out of twenty were females. Nearly all have begun in childhood, a few in early infancy; one of mine began when six months old, and one or two have been possibly congenitally present, and all are probably of congenital origin. Four have been associated with venous nævus, and Besnier attaches great etiological and pathological importance to this.

Pathology.—All but De Smet and Bock regard it as of lymphatic origin, and that the main features are overgrowth and dilatation of the lymphatic vessels; but when one comes to details, the variety of nomenclature indicates the variety of opinion. De Smet and Bock consider that the vesicles are serous cysts derived from the arterial capillaries of the papillary body. Török, whilst convinced that the change is mainly lymphatic, admits that the blood vessels take part in the process, a view confirmed by its occasional association with blood-vessel nævi. The varying number of dilated blood vessels at different periods perhaps explains some of the discrepancy. All are now agreed that there is overgrowth

* Case of lymphangioma, *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. x., p. 213, illustrated.

as well as dilatation. Hutchinson's view that it is a kind of lupus is not accepted by any one except his son, but he uses the term in a special clinical sense, rather than to imply that it has any relationship to lupus vulgaris.

Anatomy.—The histology has been investigated by T. and C. Fox, Sangster, Hutchinson jun., Török, Schmidt, De Smet and Bock, Jacquet, and A. Hall.* All are agreed in the presence of cysts of various size, chiefly in the papillary, but also in the deep part of the cutis, and sometimes deeper still. For further details see the references.

Diagnosis.—Its commencement in early childhood, its slow but continuous progression, the congeries of small, thick-walled, warty-looking vesicles in the cutis, their straw colour, with vascular striæ, and their limitation to one region, are the most distinguishing features, which, once seen, could scarcely be mistaken for those of any other affection.

Prognosis.—There are too few cases on record to speak decisively; as far as we know, spontaneous disappearance is not to be looked for, and even after apparent destruction it has returned.

Treatment.—Destruction by caustic or excision has been practised, but not always with success, as recurrence often took place near the cicatrix. In one of my own cases, the greater part had been destroyed by caustics a year before I saw it, but many fresh groups had appeared on and round the scars of previous operations. I tried electrolysis; each vesicle was pierced by the needle attached to the negative pole, and eight to ten cells were employed; the result was satisfactory for some time, but there was partial recurrence three years later. Still, unless excision could be accomplished going widely beyond the visible disease, electrolysis is probably the best plan, if it is interfered with at all.

LYMPHANGIOMA TUBEROSUM MULTIPLEX.

Under this term Kaposi † described the only case then known, which occurred in Hebra's clinique. Subsequently, Pospelow ‡ and Van Harlingen § have each recorded a case under the same

* Dale James's case, *Lancet*, June 20th, 1891.

† Hebra, vol. iii., p. 387; Hebra's *Atlas*, Lief. x., Tafel 6.

‡ Pospelow, *Viertelj. f. Derm. u. Syph.*, vol. vi. (1879), p. 521.

§ Van Harlingen, quoted by Duhring (third edition), *Amer. Derm. Soc. Trans.*, 1881.

name, but with several important differences. Quite recently E. Lesser and R. Beneke * have published a case at first diagnosed as myoma, in which microscopic examination revealed a structure thought to be like that found by Kaposi in the disease under consideration. Hebra's case was an unmarried healthy woman, æt. thirty-two, in whom the affection had existed from childhood. The nodules had been perfectly quiescent for several years, but had increased in number during the last three or four.

The lesions were scattered all over the trunk, from the pelvis to the submaxillary region, and the back of the neck as far as the hairy scalp, where there were hundreds of nodules about the size of lentils, rounded, brownish-red, rather glistening, smooth, not scaly, and flat or moderately elevated above the surface. They felt firm, elastic, and rounded with ill-defined limits, embedded in the corium, and going down to the subcutaneous tissue. The nodules were slightly painful, and pretty uniformly distributed without special arrangement, a few small, irregular groups existing, only from their great abundance; the epidermis was quite smooth and unaltered, except from the presence of a few dilated vessels on the nodules.

The Lesser-Beneke case was that of a man, æt. forty-nine, who had for the last seven or eight years observed some cutaneous nodules, which increased in numbers, but very little in size. They were situated on the antero-lateral parts of the trunk, especially above the level of the nipples, varied from a hemp seed to a lentil in size, projected moderately above the surface, were not very sharply defined, and varied in colour from pale brown to brownish-red; pressure made them paler, but they did not disappear, being quite firm to the touch.

Pospelow's case was an unmarried healthy woman, æt. twenty-three, who applied to the hospital on account of a large number of papillomata about the vulva. The case differed from Kaposi's, as the small nodules were in many places aggregated into compound tumours, one, as large as a pigeon's egg, under the left breast; they existed all over the body, except the palms, soles, and scalp, and were from a millet seed to a hazel nut in size. They

* *Virchow's Archiv*, 1891, Heft i. The "Hidradénomes éruptifs" of Besnier are fully referred to in Kaposi-Besnier, vol. ii., p. 367. See also *Brit. Jour. Derm.*, vol. iii. (1891), p. 35 (Philippson), which also opens up the literature.

disappeared into the skin on pressure, reappearing, however, directly. They were from pink to violet in colour, and some were translucent, as if filled with fluid; on incision there was only a little turbid fluid on the surface, while below it was a solid gelatinous mass. The breast tumour had existed from early childhood, and was probably congenital; the others came subsequently, but it was not known when. A few years later, the patient was again seen; the older growths were unchanged, but new ones had formed, and continued to do so while under observation.

Van Harlingen's case resembled Pospelow's, in that the smaller growths, from a pin's head to a hazel nut in size, were smooth, lilac or purplish elevations, compressible like bladders filled with air, and on excision, the contents were found to consist of a pearly, gelatine-like, semi-transparent mass. The larger tumours were like flabby molluscum fibrosum growths. These various growths were scattered all over the body, with numerous telangiectases and brown patches of pigmentation interspersed.

The first two cases are considered by Besnier, Török, and Philippson to belong to the group of cases which have been described under various names by different authors, such as idradénomes éruptifs (Besnier), adénomes sudoripares and hydradénomes* éruptifs (Darier), syringo-cystadenom (Török), cellulome épithélial éruptif (Quinquaud), epithéliomes kystiques bénins (Jacquet). It is a disease described as for the most part limited to the front and sides of the trunk, from the clavicles to the umbilicus, but in a minor degree has been observed on the upper segments of the limbs, on the neck, forehead, and orbits, and very slightly on the posterior surface (Quinquaud). Philippson also records its occurrence on the forehead and orbits. Perry's† case of adenoma of the sweat glands was limited to the face and scalp, the lesions being in closely aggregated groups about the centre and sides of the forehead, the root of the nose and inner canthi, the cheeks and upper lip close to the nose and the lower lip; except as regards the forehead, having very nearly the distribution of adenoma sebaceum; the lesions were, however, quite white, with no telangiectases. Quite recently Brooke‡ has published four cases with

* As the derivation is from ἵδρως, sweat, hidradenoma is the more correct spelling.

† *International Atlas*, Part III., plate ix.

‡ *Brit. Jour. Derm.*, September 1892, illustrated. He gives a critical review of the whole subject.

precisely the same distribution on the face, but the trunk was also affected. Three of Brooke's cases were a mother and two daughters. He considers that all the above cases belong to the same group. The lesions are small projections, from a pin's head to a split pea in size, roundish or oval, with the long diameter transverse, and in Darier-Jacquet's case were arranged in rows, and there is some tendency to grouping, occasionally even confluence. They are firm to the touch, not very well defined, vary in tint from pink to *café au lait* or yellowish or even white, and have no telangiectic vessels. They generally begin from the age of ten to fourteen years, and slowly increase in number and size. Those on the forehead in Philippson's case were translucent, like colloid of the skin; those on the trunk were opaque. There were no sensory symptoms. Hallopeau showed to the French Dermatological Society a case he called hydradenoma, in which there were yellow, rounded, firm nodules, which dated from infancy, on the eyelids of a man. In the left internal canthus, one of the tumours had become epitheliomatous after an excoriation. In this case, besides the changes usual in hydradenoma, Darier observed considerable degenerative changes in the elastic fibres of the skin.

Anatomy.—In Kaposi's case, a vertical section appeared riddled with round, oval, and slit-like holes, which were lined with nucleated epithelium, and were considered by him, as without doubt, sections of lymphatic vessels and spaces, with an increase of connective tissue round them. The origin of the dilatation of the lymphatics was not apparent. Beneke found similar appearances, but regarded them as new growths rather than mere dilatations of pre-existing lymphatics. Hidradenoma nodules have been examined by Darier, Jacquet, Török, and Philippson, and Brooke, who agree that the condition is anatomically due to cysts filled with colloid substance, and situated chiefly in the upper layers of the corium, from some of which bands of epithelium come off like ducts. Darier, who at first thought they were metamorphosed sweat glands and ducts, now agrees with the other observers that the epithelial bands, a few of which have duct-like structures, are derived from imprisoned embryonic epithelial germs. Philippson also examined the lesions on the face of his patient, which were like colloid milium, and described them as of identical structure, ascribing the transparency of the tumours to the degeneration being more advanced, and the skin over them thinner than on the chest. He compares them to the ordinary milium of embryonic origin described by Robinson, regarding the tumours as being epithelial growths, with colloid degeneration of the cells. The arguments against the identity of colloid and this hidradenoma are stated under colloid. Brooke's sections show that the growths start from the epidermis and hair sacs. Jacquet and Quinquaud also oppose the sweat-gland origin.

Pathology.—If the identity of Kaposi's and Besnier's cases, and those of other observers, be admitted, the disease can no longer be considered as of lymphatic or of sweat-gland origin, but as a cystadenoma of embryonic origin; but until general agreement is obtained, it is better to keep to the original title. To include Pospelow and Van Harlingen's cases in this group requires some little enlargement of our ideas in the symptomatology, and for the present, therefore, it is better to suspend judgment on the matter. The face lesions occasionally seen may closely resemble xanthoma, but they are not limited to the eyelids. The colour is of a paler yellow, they have a firm consistence, a glistening, transparent appearance, and rounded shape. On the trunk, the lesions have not the marked yellow tint of nearly all cases of xanthoma, and they are not present on the extensor aspect of the limbs, the palms, etc. They develop slowly, and there is an absence of the causes of most cases of xanthoma multiplex. The microscopic appearances would, of course, be decisive. They are less massed together, and not painful, like myomata, and have a less limited distribution, as a rule. In Lesser's case, the diagnosis was only made by the microscope.

Treatment.—The disease has no tendency to spontaneous disappearance, and nothing, so far, has appeared to have any therapeutic influence. In the event of their appearing on the face or other conspicuous position, an effort to obliterate them by electrolysis should be made, as described under lymphangiectodes, or they might be removed with a curette.

CARCINOMA CUTIS.

Cancer of the skin occurs in two varieties of scirrhus, the lenticular and tuberose, both of which are nearly always secondary to cancer of the breast; melanotic cancer of the skin was formerly described, but this is really sarcomatous. Epithelioma and its congener rodent ulcer are far more common and characteristically cancers of the skin. The first three forms concern the general surgeon more than the dermatologist, and require here only a brief notice.

Carcinoma Lenticulare * is the most common form of cutaneous

* A well-marked instance is published, with plates and histology, by Morrow and Robinson, in *Amer. Jour. Cut. and Ven. Dis.*, vol. ii. (1884), p. 1; and two cases with histology and bibliography to date by Nevins Hyde in the *Amer. Jour. Med. Sciences*, March 1892.

scirrhus. It begins as small, shot-sized, flattish red papules, which enlarge to the size of a pea, bean, or even filbert, most of them projecting more or less above the surface, while others are subcutaneous. They are generally seated on a red or violaceous surface, which may be traversed by dilated vessels, and the skin is hard, smooth, and glistening. This induration has a border well defined to the touch, may extend over the whole or greater part of the thorax and abdomen, interfering with deep inspiration, like scleroderma, and constituting the "Cancer en cuirasse" of Velpeau. The lymphatic circulation of the whole region is interfered with, the glands enlarge, and the limb adjoining becomes much swollen, preventing free movement. There may be severe lancinating pains, or only itching and burning, at all events at first. As the nodules increase in number and size, they coalesce into large irregular masses, which sooner or later break down, ulcerate, and fungate, sometimes bleeding profusely. The patient becomes cachectic, wastes, and dies exhausted, or is hurried off by internal metastatic deposits or intercurrent inflammation. In Morrow's case, besides the characteristic papules and nodules, there was a multitude of milium-like bodies, the size and shape of wheat grains, and consisting of masses of epithelium, which at the periphery were vitally active, and in the centre, fattily degenerating, and on pressure, shelled out readily like comedones. They were abundant nearly all over the front of the trunk and in some regions of the back, and were the first change noticed by the patient, and "the most characteristic feature of the advancing part of the disease."

Carcinoma Tuberosum is rarer than lenticular. As the name indicates, the nodules are larger than the preceding variety, and may be of any size up to a hen's egg. At first deeply imbedded in the subcutaneous tissues and deep part of the corium, where they may be felt as very hard lumps, they gradually grow towards the surface, and the skin over them becomes tense and red, often with a brownish or bluish hue. They are often very numerous, scattered or aggregated into irregularly nodulated masses, and all tend to soften and break down into foul and painful fungating ulcers, which speedily exhaust the patient. One of the worst cases of this kind, where the disease was primary in the skin, is reported by Röseler.* The nodules appeared suddenly, almost

* *Virchow's Archiv*, vol. lxxii., p. 372, with plates.

all through the panniculus adiposus, in a woman of fifty, increased rapidly in number and extent, until the whole body surface was covered with tumours from a pea to an egg in size, over which the skin was at first stretched, and red, and then groups of yellow vesicles formed; then they all broke down into ulcers almost simultaneously, within six months from the onset, the patient sinking seven weeks later. There was no internal growth that could have been the starting-point.

Treatment for either form is unavailing. Euthanasia is all that can be aimed at.

EPITHELIOMA.*

Synonyms.—Epithelial cancer; Cancroid; Carcinoma epitheliale; *Fr.*, Epithéliome; Cancroïde; *Ger.*, Epithelialkrebs.

Definition.—A malignant ulcerating new growth of the skin and mucous membranes, characterised by the development of heterologous epithelium in the corium and subcutaneous tissues.

According to Wilson, epithelioma constitutes about half per cent. of all skin diseases. It begins in most instances at the border of the mucous membranes and the skin, such as the lower lip. It may also begin on the mucous membrane only, as on the tongue or on the free surface of the skin. It is with the disease, as manifested in the first and the last position, that we have chiefly to do.

There are three clinical varieties: (1) the discoid, (2) the papillary (both superficial), and (3) the deep-seated and infiltrating. These differ in clinical aspect, mode of development, and course, though the process is essentially the same in all, and the primary growth is almost invariably single. In the superficial form, the disease affects pretty uniformly all the tissues of the skin; in the papillary, the papillæ are the parts chiefly affected, while in the deep-seated, the deep part of the corium and subcutaneous tissues are the primary seats of the disease. These distinctions only hold good for the early stages of the disease, before ulceration has taken place, as the superficial tends to get deep eventually. The

* *Literature.*—Paget's lectures on Surgical Pathology, third ed., 1870, p. 700,—the best clinical account in the English language, to which I am much indebted. Cornil and Ranvier's *Manual of Pathology*, English ed., 1882, vol. i., p. 257. *Cancerous Affections of the Skin*, Thin, 1886.

disease may begin on apparently healthy skin, on the site of a scratch or other injury, or on previously diseased tissue.

Symptoms.—**Superficial Discoid.** Ill-defined papules or nodules covered with fine scales, continually renewed after removal, make their appearance, and when laid bare, look like bright red granulations. These gradually enlarge peripherally and vertically, and coalesce into a superficial, hard, round or oval, irregularly surfaced disc, of varying size, sharply defined at the border, which may be abrupt or sloping. The whole is movable with the skin at first, but afterwards becomes adherent to the subjacent tissues, and eventually, though it may be months or years, breaks down into ulceration. Sometimes the initial papular stage may be missed or unobserved, the disease apparently commencing as a fissure in the skin, and oozing with a thin fluid, which dries into a crust of a yellowish-green or black colour. In these forms, the disease is limited to the corium for a long time.

The **Superficial Papillary Epithelioma** is most common on mucous membranes, especially those of the genitalia, on the scrotum and extremities, and often begins on a mole, wart, or other simple papilloma. A soft growth becomes indurated, the component papillæ enlarge, and their epithelium proliferates both within and without. The papillomatous composition becomes more and more evident, especially if the surface epithelium is washed away, and the papillæ project considerably above the surface, and take various forms, cauliflower, fungiform, cylindrical, conical, and pyriform, according to the relative proportion of the base and apex of the growth, and the mode of grouping of the component parts. They are highly vascular, bleed easily, and are of a bright, florid colour, thinly coated with opaque white cuticle, if in a moist position. Sometimes this form develops on the previously described plaque or nodule before, or subsequent to, its ulceration. Both the papillary and discoid forms spread both laterally and vertically, but for a long time, the firm fibrous tissue of the deep part of the corium may resist the downward extension, and the lateral growth is thus the predominating one. This may be very slow until ulceration sets in, which it inevitably does, generally before the patient comes under notice, commencing in the plaques as a diffuse excoriation, extending up to, but not destroying, the border of the growth, or from a fissure or wound in which the

disease commenced. The discharge dries into a scab or dark crust, beneath and beyond which the ulceration extends.

In the papillary form, the centre breaks down first, and extends in all directions, but the new growth more than compensates for the advancing destruction. The resulting ulcer is generally characteristic; it is roundish, oval, or elongated, with uneven outline. The base and border are hard, and the latter is everted or undermined, and purplish-red, the thickness of the infiltrated part varying from one-twelfth to half an inch, in proportion to the extent of the ulcer. The granulations are small, bleed easily, are situated on a convex, irregular floor, and exude a thin, serous, peculiarly offensive discharge, which, unless in a moist situation, dries into a crust, and is speedily renewed after removal. This ulcer may be quite superficial, "cropping the papillary layer" only, as Wilson puts it, and even healing in the centre, while it spreads peripherally. Eventually, however, the cancerous epithelium invades the deep layers; and when once the fibrous barrier is penetrated, the malignant process proceeds comparatively rapidly through the fat, fascia, muscles, and even the bones, implicating the neighbouring lymphatic glands, which enlarge into hard nodules, and then coalesce into large nodulated masses, which soften in the centre, the skin over them becomes livid, often with superficial pustules, gives way, and deep foul ulcers are produced; the next series of glands gets involved, and in rare instances, the viscera, the lungs, liver, and even heart; the patient becomes cachectic, and soon dies, exhausted by the pain and discharge, or from some intercurrent malady. The whole disease lasts, on an average, four years when it is on the skin, the course being much slower in the superficial than in the deep form. The sensory symptoms which accompany these tumours and ulcers vary much. Sometimes they produce scarcely any inconvenience, at all events until ulceration has set in; or there may be stinging, pricking, or burning; but more frequently there is a dull aching, with exacerbations; or again, it may be severe and lancinating. The suffering is naturally much greater when it is about the mouth or anus.

Deep-seated Epithelioma represents at an early period, the condition only attained to at a later stage in the superficial form, and since its course, therefore, is much shorter, and more serious altogether, it is fortunately much rarer than the other forms. It

is most common in the tongue and submucous tissues, but occurs also in the subcutaneous tissues, while the skin or mucous membrane over it is perfectly healthy at first. A good example, depicting the disease in the skin, is related by Paget. "A gentleman æt. sixty-four had a tuberculated growth of ten weeks' duration on the side of the nose an inch in diameter, and gradually elevated up to about two lines above the surface; the skin over it was thin, adherent, and florid, with dilated vessels; the base of the growth rested on the bones, and involved the whole of the tissues to the periosteum, but was movable *en masse*; in the middle and most prominent part was a fissure nearly a line in depth, with black, dry borders, from which a very slight discharge issued." It was very painful, and, from the history, probably began in a small sebaceous cyst. The patient was well ten years after its removal.

Sometimes the surface and deep tissues are simultaneously involved, but the deep parts are always most affected, and then form "a roundish, firm, or hard and elastic lump," but very little raised above the surface, on some part of which is a fissure, ulcer, or cancerously affected skin (Paget). The mode in which this form begins to ulcerate is thus described by Paget:—"Either the skin over the tumour becomes adherent, thins, and cracks, the fissure for some time remaining dry and dark, while the ulceration is extending below, or the central part softens, suppurates, or even sloughs through a comparatively small opening, while ulceration spreads laterally from the cavity; or, in secondary growths and under old scars, the cancer fungates through a sharply defined ulcer."

The positions for epithelioma are, according to Paget, in the order of frequency—the lower lip 50 per cent. or more, the tongue and external genitalia of both sexes, more rarely at the anus, interior of the cheeks, the upper lip, palate, larynx, pharynx, and cardia, the neck and os uteri, the rectum, bladder, perinæum, extremities, face, head, and trunk. Thiersch gives, in 102 cases, 78 on the face, of which only 48 were on the lower lip. Roger Williams collected 329 epitheliomas of the lip from some of the London hospitals, and all except three were on the lower lip and in men. Epithelioma of the upper lip, therefore, is very rare, but there are many cases scattered through literature, and Eschweiler collected no less than 66 cases. When it does occur, although actually there are more males than females, it is

only as 3 : 2. It is also said to affect the left side oftener than the right. Certain occupations or customs may, however, modify the usual proportion; thus, in workers with paraffin and chimney sweeps, it is abnormally common on the scrotum (**chimney-sweep's cancer***); and it is common on the thighs in the inhabitants of Northern India, commencing in the cicatrices of burns, produced by their custom of warming themselves over pots of hot ashes (T. Maxwell).

Etiology.—Five out of six cases are males, and the great majority occur after the age of forty; it is rare under thirty, but soot cancer has been seen in children of eight years old, and Lébert records a case of cancroid in a child of eight and a half, in whom it was almost congenital. Heredity accounts for a small number only, about 5 per cent. The most potent factor as an exciting cause, is long-continued irritation, though occasionally a single injury has been followed by it. It is thus that its preponderance in men, and on the lower lip is accounted for, from the prevalence of smoking, even some of the few women victims having been smokers. Next to this, as starting-points, or predisposing conditions, are certain neoplasms, especially warts, horns, and other forms of papillary hypertrophy and horny thickening, such as may be seen in arsenical keratosis of the palm and sole. Other benign growths which may take on this form of malignancy are the so-called ichthyosis linguæ, moles and vascular nævi, adenomata, long-standing ulcers, such as are due to lupus vulgaris or syphilis, and the atrophic skin or scars produced by those diseases, and by burns, which are particularly frequently the prey of the papillary form.

Pathology.—The essence of the epitheliomatous process is the development of epithelium, and its infiltration into the deeper tissues, where it does not normally exist, and where its presence produces irritation and consequent inflammatory changes.

There are two classes of epithelioma, the pavement and cylindrical-celled; the latter affects only internal organs, such as the intestines, and need not be discussed here. Pavement epithelioma is divided by Cornil and Ranvier into the lobulated, the tubular, and the pearly; the first two only require consideration, the pearly form being a benign tumour.

* See Butlin's "Lectures on Cancer of the Scrotum," *Brit. Med. Jour.*, vols. i. and ii., 1892, for a full account of the subject.

Lobulated Epithelioma is the common form and type of the disease, and, as its name indicates, is composed of lobules. In a vertical section of a single lobule, the component cells are seen to undergo the same changes, from the periphery to the centre, as the normal epidermis does, from the lowest cells of the rete to the surface. On the outermost layer of the lobule, the cells are cylindrical (palisade cells); internal to this, they are polygonal and dentate (prickle cells); while in the centre, they are hornified and stratified, but, owing to their position, are compressed into lobes, with concentric layers like an onion ("bird's-nest bodies"), in the centre of which multi-nucleated and colloid cells are sometimes found. The lobules are separated by a stroma supporting the vessels, which never penetrate into the lobules. Both stroma and cells vary in composition and structure; the stroma may vary both in vascularity and density, and be either embryonic, mucoid, or fasciculated—*i.e.*, adult connective tissue—or all three together, in varying proportions; the cells may be colloid, horny, occasionally melanotic,* but seldom mixed in the same tumour. There is, however, another process, of an inflammatory kind, produced by the irritating influence of the cancerous epithelium on the tissues; the stroma between the lobules and the tissue immediately surrounding the advancing epithelium is infiltrated with round cells, most, if not all, immigrant cells; these cells separate and break up the fibres of connective tissue, and the tumour may disintegrate or slough from obliteration of the vessels, either by endarteritis, or by pressure on them by the epithelial lobules and leucocytes.

Lobulated epithelioma is developed from the epidermis of the skin or mucous membranes, or from the new embryonic tissue near it; whether it is by proliferation of the epithelial cells, or, as Rindfleisch thinks, by the influence of such cells on those of the connective tissue in the neighbourhood, is a matter of dispute, but on the whole, the balance of evidence is in favour of its being indirect rather than direct. At all events, the result is a great downgrowth of the interpapillary processes of the rete, and secondary processes bud off from these laterally, as well as terminally, and becoming detached appear as isolated epithelial masses, often in globes in the corium and deeper tissues, so that it is at this stage again possible to recognise their point of departure. Buds may also come off from the hair follicle, and Cornil and Ranvier think from the sebaceous glands also, the cells increasing from the periphery to the centre, pushing the fat cells to the centre and finally extruding them; Thin, however, doubts this, though, *a priori*, it seems probable enough. In the sweat glands, by a similar process, solid cylinders of epithelium are formed, which send out buds in the adjacent embryonic tissue, and unite into a network; some of these cylinders, which consist of small pavement cells, enlarge, and, by continued multiplication of the cells, which also become larger towards the centre, "bird's-nest bodies" are ultimately formed from these also, and get separated like those from the rete. When this development from the sweat glands is primary, and stops short of the first stage of the process described in the development of the cylinders from

* Paget, *loc. cit.*, p. 722, a case in which the disease began in a pigmented mole.

sweat glands, *i.e.*, does not go on to epidermic evolution, we have tubular epithelioma, the surrounding stroma being embryonic mucous or fibrous tissue; these tumours are less malignant in the skin than the lobulated form, though sometimes they relapse or extend to the lymphatic glands, and cannot, therefore, represent rodent ulcer.

Diagnosis.—The most characteristic features, when it usually comes under notice, are those of a chronic, painful ulcer, most frequently on the lower lip, with indurated, everted, or undermined edges; and sooner or later, secondary implication of the neighbouring lymphatic glands. The lesions of rodent ulcer, syphilis, lupus, acuminate warts, and rhinoscleroma, are the diseases from which it has to be distinguished.

The distinctions from *rodent ulcer* are mainly clinical, and are given under that disease.

From *syphilitic nodules and gummatous ulceration.*—The lesions of syphilis are much more rapid in their course, and painless; there is no hardness or new growth round the ulcers, which are multiple, sharp-edged, and punched out; and the pus is abundant and yellowish, while that of cancer is scanty, viscid, and sanious.

Epithelioma may be distinguished from a *chancre* on the penis or lip by the history and duration of the lesion, which will be short in the case of a chancre, as compared with the cancerous ulcer.

In *lupus*, the lesions are multiple, begin in childhood, or, at least, in young persons. There is an absence of induration, while there are nearly always some of the characteristic, soft, brownish, semi-translucent tubercles near the ulcer; the pus also is more abundant, and not bloody or offensive. The possibility of epithelioma being grafted on an old lupus must be borne in mind.

Since epithelioma so often starts from a *wart*, it is important to recognise the change as early as possible. If a wart, which has previously been quiescent, becomes uneasy or painful, begins to bleed, or becomes indurated at the base, in a person past middle life, it should at once be removed.

Prognosis.—This is always unfavourable, but much more so in some cases than others.

The unfavourable circumstances are—the advanced age of the patient, the tumour being situated on mucous membranes, or other places unfavourable for complete removal; if on the skin, its being deep seated, and secondary growths in lymphatic glands or elsewere, the course having been unusually rapid. Favourable

conditions are—the patient being still in the prime of life, short duration of the tumour, moderate infiltration, the growth being superficial, its being away from mucous membranes, ulceration being slight and superficial, and the absence of secondary implication of the glands. As to the course, it may in the deep-seated be fatal in two years, or in three or four; in the superficial, it may go on for several years, until the ulceration begins to penetrate into the deeper tissues, when its downward progress becomes more rapid, and the same as that of the deep-seated variety. The tubular variety is nearly always very slow, but it is impossible to distinguish it clinically.

Treatment.—Removal, speedy and complete, is the only safe course to pursue. This may be effected by the knife, caustics, galvano-cautery, écraseur, or actual cautery, according as the cancer is superficial or deep, and to the condition of the tissues round. Whatever is done should be done thoroughly, and even the apparently sound tissues immediately round should also be removed. Caustics are only suitable for the superficial form; the solid potassa fusa may be bored into the tissue in and round the growth, neutralising any excess of the potash by dilute acetic acid; the pain is of comparatively short duration. Other caustics are chloride of zinc, Vienna or arsenic paste, according to the formulæ at the end, and Kaposi recommends pyrogallic acid ʒij to ʒj of lard. Whatever is used should be applied so as to remove the entire growth, a superficial action being worse than useless. The knife, however, is the most effectual where the position does not contraindicate it; the galvano-cautery écraseur is useful when the disease cannot well be reached by caustics or the knife, or to cut off growths, as in the tongue, or, as in the eyelids, to burn it off without injuring the eye. The sharp spoon is recommended by the Vienna school, but it is not so safe as the other methods, and, if employed, the wound should be washed with a strong solution of chloride of zinc. Recurrence is always only too likely to occur, but hopes of eradication may be entertained, if this can be effectually dealt with as soon as it makes its appearance.

PAGET'S DISEASE OF THE NIPPLE.*

Synonym.—Malignant papillary dermatitis (Thin).

Symptoms.—This affection was first described by Paget in 1874, from fifteen cases. While at the onset, it resembles a simple inflammation, before very long it develops into scirrhous cancer of the whole breast. It is generally limited to the nipple and areola, but in Jamieson's case extended all over the breast and axillary region, and was nearly as extensive in G. T. Elliot's case. It occurs in women from forty to sixty years, and has been compared to an eczema, having, as Paget describes it, "a florid, intensely red, raw surface, very finely granular, as if the whole thickness of the epidermis had been removed. From such a surface, on the whole or greater part of the nipple and areola, there is always a copious, clear, yellowish, viscid exudation." The border is sharply defined, and even slightly raised, and very soon, if not at the very first, there is marked induration of the tissues, about a line in thickness, which feels, as H. Morris expressed it, "like a penny felt through a cloth." It is accompanied by tingling, itching, and burning, but with no disturbance of the general health. In Paget's fifteen cases, all within a year or two developed scirrhus of the breast, one of the first signs being retraction of the nipple. There is, however, no doubt that the apparently inflammatory condition may exist for several years before it becomes recognisably cancerous; in H. Morris's case, it was six years, in Duhring's case ten years, and in Jamieson's twenty years. I have met with a precisely similar condition on the scrotum† of a man

* *Literature.—St. Bart.'s Hosp. Rep.*, 1874, p. 83, the best clinical account. For histology, Butlin, *Med. Chir. Trans.*, vol. lix., p. 108, and vol. lx., p. 153. Thin, Med. Chir. Soc., 1880, and *Brit. Med. Jour.*, May 14th, 1881. Duhring and Wile, *Amer. Jour. of Med. Sciences*, July 1884, with a good summary of previous observations. "Maladie de Paget," by L. Wickham, *Thèse de Paris*, 1890 (G. Masson, publisher),—an excellent monograph, with coloured plates, setting forth the psorosperm theory and giving the bibliography. Jamieson, 3rd ed., p. 537. G. T. Elliot, "Paget's Disease treated with Fuchsin," *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. x. (1892), p. 272.

† The case is published, with coloured plate and histology, in *Path. Soc. Trans.*, vol. xl. (1889), p. 187. Pick's case is reported in *Deutsch. med. Zeitung*, November 5th, 1891; coccidia were found in the epithelium.

æt. forty-seven. After remaining as a raw surface for two years, nodules developed in the centre of the ulcer. Pick has met with a precisely similar condition of the glans penis.

Pathology.—The important point to decide is, whether the inflammation is at first of a simple kind, or whether it has the impress of cancer upon it from the onset.

Thin, who has made very careful microscopical observations on four cases, believes that they demonstrate that it is cancer from the outset, hence the name he proposes; but in none of his cases was the disease in an early stage. The clinical facts are opposed to this, as it is difficult to believe that a cancerous disease would continue for ten and even twenty years, in some cases, before the

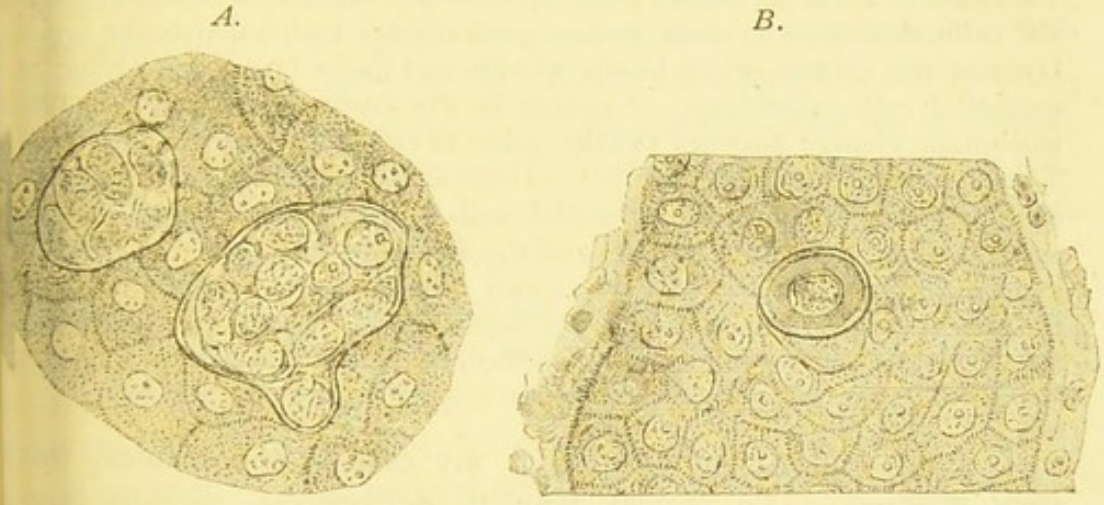

Fig. 48.—Psorosperms in my case of Paget's disease of the scrotum (after Wickham).
A. Two psorosperms very highly magnified in the rete mucosum.
B. A single psorosperm, not so highly magnified, in the middle of an interpapillary process of the epidermis.

cancerous nature declared itself in the whole gland. Comparison has been aptly made with the chronic surface inflammations of the tongue in syphilitics, and the so-called ichthyosis linguæ, in which epithelioma so often develops, though only after the irritation has lasted for many years.

Darier's* discovery of psorosperm-like bodies in this disease,

* These observations have been confirmed by Bowlby, who examined thirteen cases, *Med. Chir. Trans.*, vol. xxiv. (1891), p. 341. He admits that the bodies are probably psorosperms, that they, by their irritative presence, cause the ulcer, but the subsequent cancer is due, not to the organisms, but to the chronic irritation of a raw surface. An interesting and elaborate account of psorospermosis in rabbits, by S. Delépine, is in *Path. Trans.*, vol. xl. (1890), p. 346; also p. 214, by J. Hutchinson, jun., on psorosperms in Paget's disease.

which were also found by L. Wickham in my case affecting the scrotum (fig. 48), opens up a new line of inquiry into its pathology. The presence of these bodies is admitted ; their significance has yet to be proved ; whether they are really psorosperms, or only modified epithelial cells which resemble them, being still *sub judice*.

Anatomy.—The anatomy has also been investigated by Butlin, Thin, Wile and Duhring, Schweinitz, Porter, and others, with on the whole general agreement. The boundary between the diseased and normal tissue is sharply defined by the proliferating downgrowth of the rete, and by the abrupt termination of the cell infiltration. In the affected area, the epidermis is lost to a varying extent, entirely in some parts ; but while the surface part is gone, there is downgrowth of the interpapillary part, ultimately compressing and even sometimes obliterating the papillæ. These latter are at an earlier stage densely infiltrated by masses of lymhpoid cells, and there is more or less perivascular infiltration in the upper layer of the corium, while in the middle and lower layers are alveoli of epithelial cells, significant of cancer in the advanced cases. The first malignant change appears to take place in the lactiferous ducts ; hence Thin's name of "duct cancer." They are stuffed and dilated with squamous, not columnar, epithelial cells. This proliferating process spreads along the smaller ducts, and the distended walls give way, extruding the epithelial mass ; and by its own proliferation and by its effect on the neighbouring tissues, cancer develops outside them as well as within, spreading at first upwards and outwards, and then into the gland structure itself.

The anatomical resemblance of my case to rodent ulcer was very striking. The easiest way to demonstrate coccidia is to scrape the surface, and treat the scrapings with iodine or bichromate of potash after Darier's plan, or to soak the scrapings in liquor potassæ and mount in glycerine jelly, as recommended by J. Hutchinson, jun. They can be readily seen with a half-inch power. They are round or oval, ·03 m.m. long, have a double contour on section from the shell-like envelope, and are found in the thin epithelial layer of the raw-looking surface.

Diagnosis.—It is highly important to decide as soon as possible as to the nature of what is, at first sight, only an eczema of the nipple. Probably this is impossible at the commencement, but when the disease has lasted for some time, in a woman past the climacteric period, and has been rebellious to treatment, the difference between Paget's disease and eczema, which have been pointed out by McCall Anderson and others, begin to be recognisable.

Eczema of the nipple is most common during the child-bearing period, especially during lactation ; Paget's disease occurs usually

after the climacteric. In eczema, while there is frequent fissuring, desquamation, and exudation, there is not the intense red, raw, granulating appearance which is brought into view by the removal of the crusts in Paget's disease, in which there are none of the papules, vesicles, and pustules, with the exacerbations which characterise eczema. In eczema, the tissue is soft, there is no induration, and the edge is ill-defined. In Paget's disease, there is superficial induration about a line in thickness, to be felt "like a penny through a cloth." The border is sharply defined, and may be slightly raised. Itching, which is an early sign in eczema, is a late one in Paget's disease.

In all doubtful cases, search for psorosperms should be made by one or other of the methods described under "anatomy"; for whatever their pathological significance, their presence is constant in Paget's disease, and they have never been found in eczema.

When the nipple becomes retracted, the nature of the disease is no longer doubtful. Shooting or aching pains begin to appear, the breast gets hard, lumpy, and knotty, and before long, the neighbouring glands become involved.

Prognosis.—Unless the disease is recognised and energetically dealt with, the prognosis must be that of cancer; but if the diseased tissue be thoroughly removed or destroyed, a perfect cure may be looked for.

Treatment.—In the early stage, the treatment would be the same as for eczema of that part, to which the reader is referred. In a woman past the middle age, if the part will not heal with soothing and protective measures, irritant remedies should be avoided. Mild and superficially acting caustic remedies only do harm; and if the dangerous character of the disease be suspected, either the breast should be removed, or caustics, sufficiently powerful to destroy the whole of the affected tissue, should be selected. The best of these is the chloride of zinc paste (Caustics, F. 11), which should be spread thickly on lint, the exact size of the diseased area, kept on four or six hours, and the slough poulticed off, or wet boric lint, under oiled silk, applied; or the surrounding tissues may be protected by lint wet with vinegar, and solid caustic potash, forcibly bored into the diseased area until it is thoroughly destroyed.

Elliot's case healed completely with an ointment of fuchsin, beginning with a grain, gradually increased to five grains to the ounce. Darier, in accordance with the psorosperm theory, suggests

superficial destruction in the early stage, with chloride of zinc and iodoform applications in the interval. Great temporary improvement ensued in one case, but the patient would not persevere, and the disease returned.

RODENT ULCER.*

Synonyms.—Jacob's ulcer; Cancroid ulcer; Ulcus exedens; Noli me tangere; *Fr.*, Ulcère rongeant; Ulcère chancreux; *Ger.*, Der flache Krebs.

Definition.—A chronic cancerous ulceration of the skin, nearly always on the face, with a tendency to much destruction of all the tissues, very little to new growth, and none at all to secondary infection.

This disease was first described by Jacob of Dublin in 1827; it is still a matter of dispute as to whether rodent ulcer is a separate disease, or only a clinical variety of epithelioma, but, as it is usually clinically distinguishable, it requires separate description.

Symptoms.—The disease is not very rare in elderly people, in whom it chiefly attacks the eyelids, sides of the nose, or any part of the upper two-thirds of the face, occasionally the scalp, neck, and still less frequently, other parts also. It begins as a soft, flat-topped, or indented nodule, which the patient calls a "wart," but the surface is smooth, and it is a brownish-red, solid, moderately firm mass, often with a dilated vessel coursing over it. This growth may remain unchanged for many years, but as the patient gets old, it begins to break down, and when once it has begun to ulcerate, it continues surely, though it may be very slowly and even intermittently, to spread laterally and vertically, eating through all the tissues, both soft and hard, and destroying perhaps the greater part of the face, and eventually the patient's life, by the exhaustion induced, but never implicating the neighbouring glands, or leading to secondary deposits,—remaining, in short, a local disease from first to last. Throughout its course, although

* *Literature.*—For clinical features, Paget's *Surgical Pathology*, *loc. cit.*, and Hutchinson, *Med. Times and Gazette*, 1860, "A Clinical Report on Rodent Ulcer." For pathology, Thiersch, *loc. cit.*, and Thin, *loc. cit.*; Collins Warren, Boylston prize essay, Boston 1872; T. and C. Fox, *Path. Trans.*, vol. xxx.; Sangster, *Brit. Med. Jour.*, October 22nd, 1881; Hume, *Brit. Med. Jour.*, January 5th, 1884; Paul, *Brit. Med. Jour.*, May 2nd, 1885.

there is variable amount of new growth, preceding and accompanying the ulceration, unlike epithelioma, the new growth is slight compared to the destruction which is the predominating feature.

The ulcer is rounded or oval, with a characteristic edge, which is slightly raised, rounded or "rolled," firm, not everted or undermined, with sinuous outline, of a yellowish-red colour, with vessels coursing over it, but with none of the warty growths seen round an epithelioma. The centre, in long-standing cases, is much depressed below the surface, though at unequal levels if the ulcer is large, but, as a rule with little tendency to form granulations, the surface being comparatively smooth or traversed by furrows. There may, however, be granulations in one part while excavation is going on at another, and in rare instances, it may fungate and bleed, but, as a rule, the discharge is scanty and odourless, and while there is but little tendency to new growth, indicated by the thin layer of indurated tissue at the base and border, there is still less to permanent repair, though attempts at cicatrisation sometimes occur when the ulceration has actually eaten away the diseased edge. The cicatrisation is still more marked in a very superficial variety, of which I have seen a few instances; the ulcer is shallow, of uniform depth, with a sharp-cut edge, the whole looking as if a piece of skin had been punched out, and resembling Paget's disease; in these cases, there may be some healing in one part and ulceration in another, or even temporary cicatrisation of the whole under simple protective treatment. In one such case, a woman of eighty, the more typical form, with raised, rolled edge, and deep ulceration, subsequently developed on the cicatrised surface, and about two years later appeared the crateriform ulcer to be presently described.

The ulcer is very slightly, if at all, spontaneously painful. Occasionally, typical epithelioma has developed on typical rodent ulcer, and then all the secondary consequences of the more serious disease may supervene. Apart from such an accident, rodent ulcer may go on, if left undisturbed, for ten, fifteen, or twenty years.

The following represents the common run of cases, except as regards age and position :—

A gentleman noticed at the age of twenty-four a flat, slightly raised, soft, reddish, mole-like growth, the size of a shilling, on the side of the neck; it remained unaltered for eleven years, when, after

being chafed by his collar, it began to ulcerate, and at the end of nine years more was only two inches by one and a quarter in area, and presented the typical characters of rodent ulcer as seen in its more common position on the side of the nose.

Under the name of "**crateriform ulcer**" * Hutchinson describes a variety of malignant epithelial ulcer, which affects the same regions, on the upper part of the face, as ordinary rodent ulcer; it occurs in the same class of people, but runs a much more rapid course, growing as large in a few months as ordinary rodent would in as many years. It begins as a bossy, rounded lump, which rapidly attains a considerable size, and presents a somewhat conical summit. At this summit ulceration takes place, and with exceedingly little suppuration or obviously destructive inflammation, a cavity forms. The walls of the crater thus formed are very thick and firm; the growth is much less vascular and less succulent than that of rodent, and while it is easy to scrape the latter away, it is impossible to do so with the crateriform ulcer. It has no tendency to fungate or become warty. Nearly all the cases that I have seen have developed on a previous rodent ulcer of the ordinary type, but Hutchinson has met with them as primary growths, and the following is evidently a case of the kind. A woman, æt. thirty-three, noticed, five months before she was seen by me, a small nodule at the right inner canthus; it enlarged to the size of a large pea, and then broke down in the centre, and looked exactly like a rodent in the wart stage which had just given way, and such it was diagnosed to be at the Dermatological Society, even by Hutchinson himself. On removal, however, its structure was found to be exactly that of typical epithelioma. All the "crateriform ulcers" hitherto examined have been found to be of the typical epithelioma, and not of the usual rodent ulcer type of structure.

Etiology.—It occurs equally in both sexes, but is essentially a disease of advanced life, being most common between the ages of fifty and sixty; it is very rare below thirty, but Liveing had a case

* *Path. Soc. Trans.*, vol. xl. (1889), p. 275, with coloured illustrations of three cases. In F. J. Behrend's *Atlas* (Leipzig: 1839), this affection is depicted under the name of cancer globulosus, plate xxiii., fig. 5. The lesion is on the side of the nose near the inner canthus. It is evidently copied from Rayer's *Atlas*, plate xiv., fig. 6, where it is called cancer tuberculé ulcéré.

of a girl, in whom it began when she was eighteen, and Roger Williams,* of the Middlesex Hospital, records a case in which a pimple appeared on the left temple at the age of fourteen, which soon broke down; it took eight years to reach the size of a sixpence, but in five more was as large as a half-crown; it was then cauterised, and spread rapidly; then it was scraped, and two years later had become epitheliomatous, and was again removed; she died of it at the age of thirty-six. This writer says that the average age for rodent is forty-four for males, and forty-two for females; but this must only be because a few exceptional cases pull the average down. Local irritation of the apparently quiescent

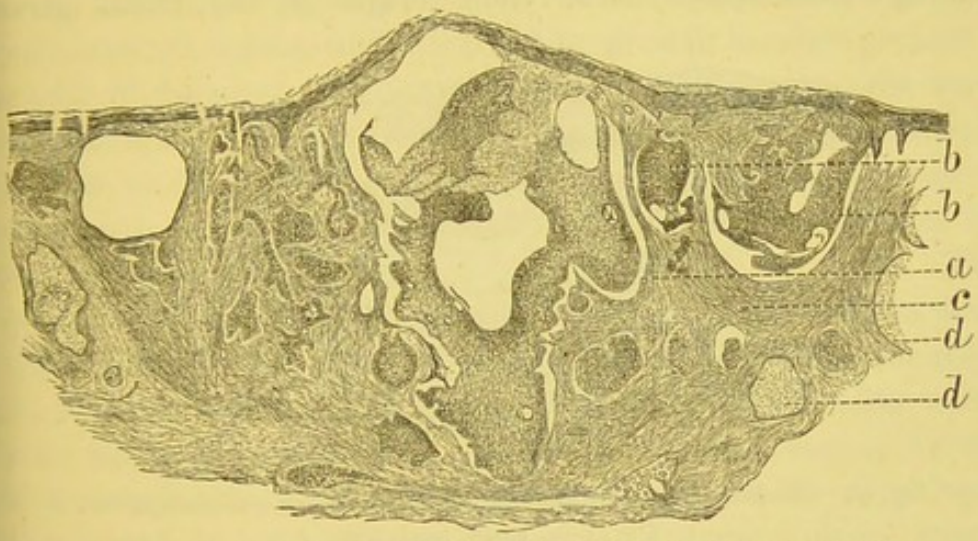

Fig. 49.—Rodent ulcer in the "wart" stage. Obj. 2 in., ocul. 2 in.

a, central mass of epithelial cells beginning to disintegrate; *b*, *b*, similar smaller cell masses imbedded in the fibrous stroma *c*; *d*, *d*, portions of sebaceous glands.

tubercles often starts the ulceration, and some cases have clearly followed a blow or other injury; beyond this, we are ignorant of its causation.

Pathology.—All are agreed that it is a cancer, of epithelial origin, but opinions vary as to its nature. Nearly all Continental writers regard it as a variety of epithelioma, and this view is supported in this country by Moore, Hulke, Hutchinson, and others, and by Collins Warren and his followers in America. Different investigators have thought that it originated in one of the appendages of the skin. Thus Thiersch and Butlin believe that it starts from the sebaceous glands, Thin from the sweat glands, and Tilbury and Colcott Fox, Sangster and Hume, from the hair follicles.

* *Brit. Med. Jour.*, October 18th, 1890, p. 895.

Paul, who has examined twenty undoubted cases, reconciles to a great extent these conflicting views, his observations going to show that each is true in particular instances, and that rodent ulcer therefore may begin in any of the skin structures; that the general arrangement and type of the growth is that of a slow-growing epithelioma, "and that it passes insensibly into the ordinary form of epithelioma." This seems to be a rational and probable view of the matter. Boyce, also, who has examined a large number, considers that some are derived from the appendages of the skin, some are endotheliomata, and some, especially the low spreading sorts, "undoubtedly are Malpighian." Darier also, whilst describing cases which have their origin in the sweat glands,

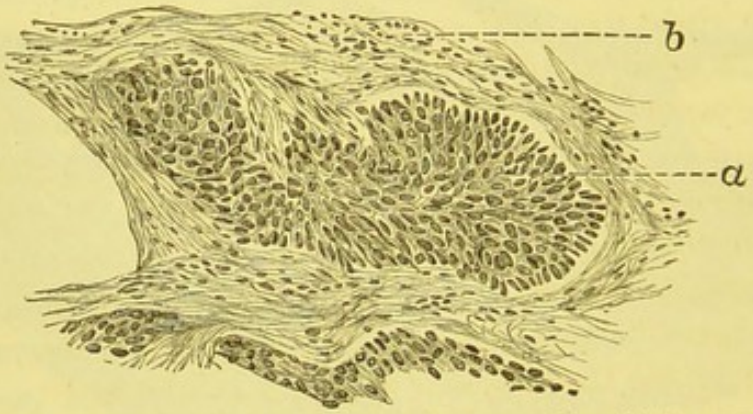

Fig. 50.—Rodent ulcer. A portion of fig. 49 under a higher power. Obj. ¼-in. Ross, ocul. 2 in.

a, a small epithelial cell mass imbedded in the fibrous stroma *b*, which is infiltrated with round cells. The outline of the epithelial cells is for the most part undiscernible, only the nuclei being visible.

regards rodent ulcer as a clinical term, which includes epitheliomata of different origin. The greater part of the growth, however, is made up of granulation tissue, the epithelial proliferation being comparatively moderate. The cells of rodent ulcer are, however, undoubtedly smaller than those of any epidermic epithelioma, and Thin, in addition, draws the following distinctions: In rodent ulcer, the nucleus of the cells is fairly uniform in size, the cell protoplasm is scanty and not granular, and the cell wall is not discernible; further, the cells never enlarge into the flat horny cells of epithelioma, they never become prickle cells, never form nests, do not retain the dye of eosine, soften in the centre of the cell masses by mucoid degeneration, and the cell infiltration and disorganisation of the corium are much less than in

epithelioma, while the cell infiltration does not go far beyond the cell growth.

Diagnosis.—It is not difficult to distinguish a typical rodent from a typical *epitheliomatous ulcer.* In the first, the ulcer is always away from mucous membranes on the upper part of the face; there is very little new growth, and much ulceration. The course is much slower, comparatively painless, and there is no lymphatic implication or secondary deposition; the edge of the ulcer is smooth and rounded. In epithelioma, the ulcer is generally on or near a mucous membrane, the new growth always predominates over the ulceration, the course is much more rapid, it is often very painful, and sooner or later it involves the lymphatics, and even affects internal organs, and a warty-like growth is often present at the edge of the ulcer. When, however, epithelioma is quite away from the mucous membranes, its course is often very slow, with but little tendency to lymphatic implication, and the amount of new growth is less, and it then becomes difficult, sometimes impossible, to speak positively as to the nature of the ulcer. This is well exemplified in the case related above under crateriform ulcer.

From *syphilitic* and *lupus* ulcers, the age of the patient, its origin from a single tubercle, the very slow course, and its being nearly always single, the absence of deposit in the surrounding tissues, and the very scanty discharge, would distinguish it. The same distinctions hold good between rodent and strumous ulcers, except that there is no induration in the latter.

Prognosis.—Although, as a rule, very slow in its progress, if left to itself, it spreads either continuously or with short intervals of quiescence, and besides producing wide and deep destruction, will eventually exhaust, and, directly or indirectly, kill the patient. Persevering treatment may, however, effect a perfect cure; and I have seen a case of an old woman who had two ulcers, one of which healed permanently. Temporary healing is quite common. In a case of extensive ulcer, with exuberant growth at the border, a great portion healed soundly under iodide of potassium, though the rest, which looked the same, had a typical rodent aspect under the microscope.

Treatment.—Like ordinary epithelioma, free removal of the ulcer, going well into the healthy tissues round, is the only safe course; its synonym, "noli me tangere," is a standing warning against half measures, which only irritate the ulceration into greater activity.

The knife, erasion, caustics, and the galvano- or Paquelin's cautery, are the means to be employed, and of these, one or other of the first two is generally preferable, according to the position. After erasion, it is safer to swab the part freely with chloride of zinc solution, ʒj to the ℥j of water, and although recurrence is very likely to take place in some part, if a similar treatment be resorted to without delay, complete eradication may generally be obtained. In extensive ulcers removed with the knife, Wolfe's* method of transplantation from the arm or other convenient part may be employed to replace the removed portion. Where operation is refused, Unna's resorcin plaster may be tried, renewing it each day. Boeck, Unna, and others have been successful with this method. In the use of caustics, the observations on the treatment of epithelioma may be referred to. The "crateriform ulcer" of Hutchinson requires free excision without delay, and then it is not likely to recur.

SARCOMA CUTIS.†

Sarcoma of the skin is generally due to metastasis or invasion from other parts or organs, but it may be primary in the skin structures. They may, or may not, be pigmented. They all exhibit a tendency to a general spreading and metastasis to glands and internal organs, and lead to the death of the patient. There are two kinds of pigmented sarcoma—the melanotic sarcoma, and the idiopathic multiple pigmented sarcoma of Kaposi.

Melanotic Sarcoma is the most common form, and usually starts from a pigmented mole, or the choroid coat of the eye, but the back and sides of the hands and feet, and genitalia, are common positions for the primary growth; on the foot, the common position is "under the middle of the tread of the heel," perhaps from injury from a nail in the boot. The following case, although more rapid in its course than usual, illustrates the clinical features.

* Esmarch, *Lancet*, June 8th, 1889, and A. Ceci, *Brit. Med. Jour.*, April 16th, 1892, illustrated with portraits of successful cases, show the advantages of the method.

† Perrin, "De la sarcomatose cutanée," *Thèse de Paris*, 1886. Funk, "Clinical Studies on Sarcoma of the Skin," *Brit. Jour. Derm.*, vol. i. (1889), p. 143; also in Unna's "Monatshefte" of the same year.

Mrs. K., æt. fifty-eight, with a strong family history of cancer, noticed what she thought was a blister from friction on the outer side of the right foot, below the malleolus. From this developed, in the course of five months, a fungating, slightly pigmented growth, the size of a crown-piece, which was excised by Mr. Rivington, and proved to be a melanotic sarcoma; eight days later, melanotic growths appeared on the outer side of the right thigh; in a week more they sprang up round the wound of operation, and from that time fresh tumours appeared daily, but almost confined to the right lower limb, the lymphatic glands remaining free; a few came on the trunk and head of the same side. Each tumour first made its appearance as a flattish papule, the size of a hemp seed, and the colour of a half-ripe mulberry; in two days, it showed signs of pigmentation, and very soon became of a bluish-black colour, like a Hamburg grape, discoidal, of any size, up to about half an inch in diameter, and raised about an eighth of an inch above the surface. The tumours by continual multiplication became confluent in some places, and then formed large, flattish, irregularly lobulated black masses, which soon broke down, fungated, and discharged sanguineous pus, or at times bled freely. She died, with symptoms of visceral implication, in less than four months after removal of the primary tumour.

A special and insidious form is that described by Hutchinson as "**melanotic whitlow**"; at first, it appears as a chronic onychitis, with very little pigment, like a "lunar caustic stain," and that only at the border; it very gradually develops into a fungating tumour, with still only a little pigment; the nail is thrown off, and generalisation soon occurs.

The **Idiopathic Multiple Pigment Sarcoma** is very rare, and was first described by Kaposi, who has met with over a dozen cases; other cases have been reported by Vidal, Tanturri, J. de Amicis, Wigglesworth, A. Donner, Hardaway, Köbner (two cases), Taylor, Hallopeau, Schwimmer,* Stephen Mackenzie, etc. The pigmentation is due to hæmorrhages into the skin, and Perrin therefore places it among non-pigmented sarcomas. The following account is taken chiefly from those of Kaposi and Funk.† It attacks first

* Plate iv. of the *Internat. Atlas* gives a good illustration and references to previous cases.

† Funk, *loc. cit.*, gives many exceptional cases, and includes a very mild type. Kaposi-Besnier-Doyon edition contains many references.

the palms, soles, or backs of the hands and feet, either simultaneously or with short intervals, then the legs and forearms, the thighs and arms, and reaches the face and trunk in two or three years.

The tumours are roundish, from a shot to a pea or bean in size, reddish-brown or bluish-red, irregularly discrete or in small or large groups. They are tender, and their development is attended with pain, which may radiate up the limb. Besides the tumours, in some cases, there is a diffuse elephantiasis, like thickening of the extremities, especially of the legs, so that the limb is stiff and distorted, and in the case of the hand over-extended, so that the patient is completely crippled. When the trunk is affected—and the whole cutaneous surface may be involved—the skin and subcutaneous tissue are diffusely infiltrated, hard as a board, and immovable, with a nodular surface, and of a dark violet-brown or plum colour (Funk). In one-fourth of the cases, nodules of infiltration are present on the glans penis, prepuce, and scrotum.

The tumours never ulcerate, but may disintegrate and disappear, leaving pigmented scars, or, where they are in patches, the centre only undergoes involution. This may occur in even a single nodule. On the trunk and face, the surface may be eroded, and expose a blood-infiltrated tissue, which may become warty or fungoid from irritation. Dilated vessels and hæmorrhages round the nodules are common. In middle-aged persons, the general health may be but little affected for several years, except from the itching, burning, or pain in the extremities, but fresh nodules continue to form, and ultimately the mucous membranes are affected, when the downhill course is often rapid. "Dark bluish-red patches, diffuse infiltrations, or little nodules arise on the gums, palate, or uvula; the tonsils become swollen, the patient becomes markedly anæmic, emaciated, and feverish. The lymphatic glands, spleen, and liver become considerably enlarged. In this stage, whole groups of nodules sometimes ulcerate, and deep, ichorous, extremely offensive ulcers are formed. "The neoplasms of the mucous membranes ulcerate still more quickly" (Funk). Marasmus, bloody diarrhœa, and hæmoptysis close the scene, and post mortem, similar tumours are found in most of the viscera, especially in the descending colon, where they tend to slough. The ordinary duration is from three to five years, but in young persons, death may occur in the first, second,

or third year, while six or even twelve years may elapse in older people, before the health gives way. Recovery does, however, occasionally take place. Hardaway's and Funk's case recovered completely. Mackenzie's case, which had previously been under Pringle, was a Galician Jew, æt. forty-five, whom I had the opportunity of examining on several occasions. After presenting all the typical symptoms, and having one leg amputated, he seemed to be in a hopeless condition, but ultimately, not apparently as the result of treatment, he improved, and when shown to the Dermatological Society in 1892 appeared to be in a fair way of recovery, large numbers of the tumours and the elephantiasis of the limbs having disappeared.

Etiology.—Most of the cases have occurred in middle-aged men and upwards. Funk's case was seventy. Several have occurred between twenty and thirty, and one under twenty. A large proportion have been Polish and Galician Jews of the lowest class; but whether this is the result of their nationality, their habits, or their surroundings, it is impossible to say.

Anatomically, they are small-celled sarcomas, containing small hæmorrhages and free pigment granules.

Diagnosis.—The leading features are the commencement in the hands and feet of small painful plum-coloured tumours, followed by elephantiasis, deformity of the extremities, board-like indurations, and ultimately of generalisation, with a usually fatal result. The diseases with which it may be confounded are at the commencement the palmar and plantar scaly syphilide, and later in its course with mycosis fungoides, syphilitic gummata, and the nodules of lepra and lupus.

Treatment has been unavailing hitherto, but although it failed in Schwimmer's case, Köbner's * treatment by injections of liq. arsenicalis deserves further trial.

In the **Non-pigmented Sarcoma Cutis**, the tumours may be in enormous numbers, amounting to several hundreds, or there may be a few only, or even a single one. In size, they may be from a lentil to a bean, or larger, firm to the touch, not necessarily tender, and the skin over them is reddish or bluish-red, and perhaps slightly scaly. Very many of the cases reported as sarcoma cutis

* *Berlin med. Wochensch.*, 1883, No. 2. See p. 641.

are really subcutaneous, and the skin over them more or less movable, and often of normal colour. Where they are very thickly placed they may form plates or masses, with a more or less nodular surface. There are, however, scarcely two cases alike in either clinical features or structure.

The following is an instance of a moderate number of tumours: A healthy-looking man, æt. forty-seven, noticed on his right cheek what he took to be a small mole, which irritated him and was scratched, and then grew to the size of a hazel nut. This was removed at the county infirmary, but grew again, and when seen fifteen months from the first onset was as large as ever, and there were numerous smaller secondary growths, extending nearly to the angle of the lower jaw. Many of the smaller growths coalesced with the base of the larger one, but there were isolated hemp-seed to pea-sized tumours beyond it. They were of a livid colour, and the central one was scabbed, and bled easily. The tumours were firm and not tender, but were sometimes painful. There was a solitary enlarged gland under the angle of the jaw, but the general health was unaffected. The tumours were excised by Mr. Heath, but in six months the man returned with a few fresh tumours on the cheek, and enormous enlargement of the submaxillary lymphatic glands. The date of his death is unknown. The tumours excised first by Mr. Heath were those of alveolar sarcoma, those of the second recurrence were round-celled sarcomas.

Perrin,* who has closely studied sarcomata of the skin, divides the non-melanotic forms into three main groups.

In I., primarily generalised, he places the type already described as Kaposi's idiopathic multiple pigment sarcoma, the pigment being hæmorrhagic.

In II., primarily local, are simple round-celled sarcomas (Dauchez, Legendre, Gairdner, Perrin, etc.), which begin at any part of the body, in the subcutaneous tissue, and gradually implicate the skin, which becomes claret-coloured when they become adherent to it. There may be only one at first, but, after some time, others follow on the skin of the extremities, or more or less numerous tumours come out, especially on the trunk, face, or upper part of the limbs, without any special arrangement.

He classes mycosis fungoides as a third group of lympho-

* Perrin, *loc. cit.*; good analysis by Brocq, *Ann. de Derm. et de Syph.*, vol. vii. (1886), p. 228.

sarcomata; and, finally, admits a fourth group, clinically and pathologically, of hybrid type, partaking more or less of the characters of the main groups.

Here may be mentioned a rare form of spindle-celled sarcoma, described by Hutchinson as "**recurrent fibroid of the skin.**" "It begins usually in the lower extremities, grows slowly at first, but recurs rapidly and persistently after removal, however wide the incision, and ultimately generalises, fungates, forms blood cysts, and destroys the patient."

Treatment had always been futile, a fatal issue appearing inevitable, until Köbner tried arsenical injections. Fowler's solution was used, diluted one to two of distilled water. The first case was a girl of eight, who had more than three hundred tumours, from a hazel nut in size downwards, scattered nearly all over the body. Two and a half to four drops of the solution were injected once a day, and after three months, the dose was raised to seven and a half and then to nine drops. The tumours gradually disappeared, leaving at first brown, slightly scaly patches, and finally even these disappeared: the child was quite well a year later.

A similarly successful case, in a woman æt. thirty-one, is reported by F. C. Shattuck. The disease was first observed in the submaxillary lymphatic glands, and subsequently enormous numbers of pea-sized tumours developed in the skin. The dose was at first four, and later six minims of Fowler's solution diluted; the treatment was continued for about eight months, and she was quite well a year later.

MYCOSIS FUNGOIDES.*

Deriv.—μύκης, a fungus.

Synonyms.—Granuloma fungoides (Auspitz, Payne, and others); Eczema hypertrophicum or tuberosum (Wilson); Inflammatory fungoid neoplasm (Geber and Duhring); Fibroma fungoides (Tilbury Fox); Ulcerative scrofuloderma (Van

* *Literature.*—Vidal and Brocq, "Mycosis fongoïde," *La France Médicale*, Nos. 79 to 85, tome ii., 1885, gives a full account, with bibliography to date. Auspitz, "Granuloma Fungoides," *Viertelj. f. Derm. u. Syph.*, vol. xii. (1885), p. 123, with coloured plates, and Hochsinger u. Schiff. in vol. xiii. (1886), pp. 361, 389. Payne, "Granuloma Fungoides," *Path. Trans.*, vol. xxxvii. (1886), p. 22, with coloured plates and

Harlingen); Lymphadénie cutanée; Lymphodermia perniciosa (Kaposi); Sarcomatosis generalis (Kaposi); Multiple sarcoma of skin (Nevins Hyde); Multiple fungoid papillomatous tumours (Köbner).

Alibert, in his great work of 1814, first described and figured a case of this disease in a Parisian, under the name of "pian fungoïde," which he regarded as allied to yaws, and identical with Amboyna button, or pian of the Moluccas; in his 1832 8vo edition he changed the name to mycosis, referring to its external resemblance to a mushroom, and not to a theory of its pathology.

That he was not far wrong as to its clinical resemblance to yaws is shown by the fact that so great an authority on yaws as Gavin Milroy* relates a case, which is clearly the disease under consideration, as an example of yaws in a man who had never resided out of England. Subsequent French writers, especially Bazin, Hardy, Besnier, Vidal, and Brocq, have made our clinical knowledge of the disease pretty complete. Isolated cases have, from time to time, been reported under various names, of which some are given above. English, German, and American authors now acknowledge their identity with Alibert's disease. In England, since we have learned to recognise it, some half-dozen cases have been shown at the Dermatological Society. I am much indebted for the following account to Vidal's description, which is very clear and explicit, and borne out by my own more limited experience. It occurs under two aspects.

In one, an eczematous,† erythematous, lichenoid, or, as in

partial bibliography; Swinford Edwards' case is in the same vol., p. 468, as "Round-celled Sarcoma of the Skin." Tilden, "Mycosis Fungoïdes," *Boston Med. and Surg. Jour.*, October 22nd, 1885, p. 386,—a good account and full bibliography. Funk, *loc. cit.*, on sarcoma. Ledermann, two cases, *Archiv f. Derm. u. Syph.*, vol. xxi. (1889), p. 683, gives full bibliography. Stellwagon and J. L. Hatch, *A Study of Mycosis Fungoides*, with a report of two cases; the histology and bacteriology were thoroughly gone into, and the bibliography from 1885 given, but Hallopeau's case alluded to, turned out to be general lupus erythematosus. Besnier, "A Contribution to the Clinical History of Mycosis Fungoides, especially of the Pre-mycosic Period," with two new cases, *Jour. des Malad. Cutanées*, vol. iv. (1892); and *Ann. de Derm. et de Syph.*, vol. iii. (1892), pp. 242 and 987, with Hallopeau.

* *Med. Times and Gazette*, February 17th, 1877, p. 169.

† Kaposi, in a recent paper (April 1887), divides this into two forms —(1) those cases which begin as a scaly eczema and itch severely;

Colcott Fox's case, pityriasis-rubra-like eruption, precedes the tumour or fungoid stage. The eruptions are widespread, with or without scaliness, and tend to generalise, with marked infiltration of the skin, but vary in their course.

In the other, the tumours appear without antecedent lesions, may be single or multiple, but occupy a limited area, do not generalise, and preserve a uniform character.

Both are fatal, but the second often more rapidly than the first.

Symptoms.—**In Form I.**, after perhaps an apparent urticaria, erythema, or what appears like dry eczema, bright, rose-red patches occur, of variable size and extent, small, discrete, and isolated; or large, confluent, and irregular. These gradually project above the surface, prick, burn, or itch, sometimes severely. This pre-mycosic period, in which erythema is the most common form of dermatitis, may last for months or years, the disease remaining quite superficial; then it gets deep, involves the whole thickness of the skin, which becomes infiltrated and stiff, from a sort of hard œdema like that of leprosy; but the redness *pari passu* increases, and the papillary body thickens into papules or plaques, forming the lichenoid plaques of Bazin. These may disappear rather rapidly, but soon re-form on the same or different parts; or they may develop more and more above the surface till they constitute true tumours; occasionally, the tumours form on the healthy skin as well, and in one of Stellwagon's cases, the tumours developed almost simultaneously with the erythema, an eruption, which appeared to be erysipelas, being the immediate antecedent where the tumours were about to appear.

The tumours which mark the second stage of the malady are of a bright, deep, or bluish-red, rarely pale or yellowish-white, rather sharply defined, roundish or oval, sometimes slightly pedicled, and from a lentil to the fist in size. The large ones, from confluence, are covered with tense, shining epidermis, and may occur on the mucosæ of the mouth, especially the uvula and palate. They may disappear in the course of a few days, without ulceration, and leave no trace; but more frequently they ulcerate very gradually, the epidermis falling off, and excavations or

(2) those which begin with erythema or red urticarial-like firm lesions, which do not itch, but are whitish or fawn-coloured in the centre, extend, get brown, and resemble scleroderma or lepra. I saw a case of this kind very like lepra, under Dr. Stephen Mackenzie's care.

abscesses may be formed in them. By this time "the fungoid state" is reached, in which variously sized, fungating tumours are a characteristic feature. Sensibility is diminished, and pain, itching, and smarting have disappeared almost entirely. The lymphatic glands generally, may be enlarged. In hairy parts, the hair falls off over the tumours and eruptions, which may be seen simultaneously on the same patient. At first, the general health is but little changed, but after a variable time cachexia sets in, with rapid emaciation, and often obstinate diarrhœa or pulmonary complications usher in the end.

In three cases, there has been leukæmia* (Biesiadecki, Philippart, Kaposi, and perhaps de Amicis). The total duration varies from six months to five or even fifteen years. Bazin † records a

Fig. 51.—A portion of a mycosis fungoides tumour highly magnified. Obj. $\frac{1}{6}$ P. and L., ocul. 2 in.
The cells are imbedded in a delicate fibrous stroma.

complete recovery, the tumours having rapidly and permanently disappeared after an attack of erysipelas.

In the **second form**‡ (Kaposi's third form), the tumours commence at once, and soon attain to the condition of the third stage of the first form, but the disease is confined to one region of the body. The tumours seldom disappear, even temporarily, and the course is steadily and often rapidly downwards; two or three months have been recorded, but one or two years is more common for this form. Finally, Besnier says there are mixed cases, which connect the two types.

Etiology.—Very little is known under this head. Tilden found

* Kaposi's case of lymphodermia perniciosa is an example.

† Funk, *loc. cit.*, regards this as an example of idiopathic multiple pigment sarcoma.

‡ Swinford Edwards' case illustrates this form.

from the analysis of thirty cases, twenty-three males to seven females; three-quarters of the patients were over thirty years old, from forty to fifty being the most common decade, the extremes being twenty and sixty-eight years (Demange). No two instances have occurred in the same family, and, unlike yaws, it is not contagious.

Pathology.—While the main facts as to the anatomy are generally agreed upon, much difference of opinion exists as to the interpretation to be placed upon them.

Anatomy.—Anatomically the tumours consist of round cells supported by a scanty delicate reticulum, which replace the normal tissue of the cutis. The new growth is somewhat scantily provided with vessels, and, as it spreads, destroys the cutaneous capillaries, the boundary between the healthy and diseased tissues being ill-defined. Ranvier and most French observers have classed it with lymphadenoma; but Siredey, who examined Vidal's specimens, thought it was lympho-sarcoma, and until recently all German authors have considered it a sarcoma. Hochsinger and Schiff, who examined Auspitz's case, regard it as a granuloma, with which Payne, Stellwagon, and Hatch agree, and this view is probably the correct one. Another disputed point is as to the presence and significance of micrococci in the tissues. Rindfleisch, by employing Gram's method of staining, found streptococci within the vessels; Hochsinger and Schiff found them as a copious infiltration within the cells. Payne disputes their having any special significance, attributing Rindfleisch's organisms to the septicæmia of which the patient died, and those of Hochsinger to albuminous granules; while Schiff's culture was produced by the staphylococcus pyogenes aureus. Payne, and those who worked with him, could find no organisms in his case. Köbner, and after him Dönitz and Lassar, from independent investigation, came to the same conclusion as Payne; hence it must be inferred that the true materies morbi yet remains to be discovered, though quite recently Stellwagon and Hatch have obtained micrococci, which they think are probably pathogenetic.

Diagnosis.—At the beginning, when apparently simple eruptions precede the formation of the tumours, the diagnosis may be very difficult, even Hebra having once diagnosed a case as eczema, and it may also be mistaken for an erythema exudativum, a psoriasis, or a pityriasis rubra.

The irregularity of distribution, the sharply defined border, and the greater thickening than in any of those diseases, might excite suspicion. There is generally not so much discharge as in *eczema*, with the same amount of hyperæmia; not the heaping of silvery scales of *psoriasis*; neither is it in the psoriasis positions; while there is too much scaliness, and it is too chronic, for *erythema*

exudativum. The itching, too, is generally more severe than it would be in all but eczema, and enlargement of the lymphatic glands is general and pronounced without leukæmia, according to Besnier, who says, "In all cases of ambiguous pruritic dermatoses which are prolonged and rebellious to ordinary methods of treatment, the possibility of the disease being the pre-mycosic period of mycosis fungoides should be borne in mind."

When the bright red gives way to a deeper or more coppery red, and the infiltration increases, a suspicion of *tuberculated leprosy* may be aroused, but there would be no anæsthesia, and probably no history of residence abroad, and a much greater scaliness than the leprous infiltration presents; moreover, the characteristic bacilli of that disease would be absent. When the fungating tumour stage is reached, there can be no difficulty. In the more localised forms, where there is no preceding eruption, it may be mistaken for *sarcoma* or *carcinoma* cutis; the absence of early implication of the lymphatic glands, although tumours in the groin may simulate them, and the comparative painlessness, would perhaps be a help to a right conclusion, while, as a rule, the course would be slower, and the internal organs would never be implicated.

Prognosis.—With the exception of Bazin's and Geber's cases, the result has invariably been fatal, the extremes being nine weeks (Gaillard) and fifteen years, the widespread cases, which commence as apparently simple inflammations, being much less malignant in their course than the cases which begin at once as tumours. With this exception, we have no data to guide us as to the course the disease will take.

Treatment.—Nothing has unfortunately appeared to exert any influence in checking the course of the disease, and we are so completely at sea as to its true etiology and pathology, that therapeutics must be entirely empirical. Personally, I should be inclined to try large doses of quinine, and perhaps injections of carbolic acid into the infiltrations, though Mannino used subcutaneous injections of resorcin without success, on the theory that the disease is of microbic origin, though what the microbe is remains unknown.

According to Vidal and O. Simon, pyrogallic acid in the form of ointment is of service as a local application.

Stellwagon tried arsenic internally and by subcutaneous injection most thoroughly in one case, but with no good result.

YAWS.*

Deriv.—From Carib, *yáya*, the meaning of which is doubtful.

Synonyms.—Framboesia (*Fr.*, Framboise, a raspberry); Pian; *Ger.*, Beerschwamm; Paranghi (Ceylon); Amboyna button; Coco (Fiji), etc.

Definition.—An endemic specific and contagious disease, characterised by raspberry-like nodules, with or without constitutional disturbance.

Yaws is a disease confined to tropical climates. It is found chiefly on the west coast of Africa for about 10° each side of the equator; also on the east coast and in the central regions, rarely in the north; in Madagascar and the Mozambique extensively; in Ceylon but rarely; in Hindustan (Pondicherry); in some of the islands of the East Indies; in the Oceania groups and in the West Indies, especially Dominica and Jamaica; and in Tropical South America, Central America, and Mexico. It is probable that the button scurvy of Ireland, now extinct, but described by various writers from 1823 to 1857 as a contagious disease which was prevalent in the south and interior of the island, was closely allied to yaws, if not identical with it.

The first mention of the yaws disease is by Oviedo (1535), who met with it in St. Domingo; but it is to Sauvages at the end of the last century, and to writers of the last twenty-five years, such as Gavin Milroy, Imray, Nicholls, and Bowerbank in the West Indies, Kynsey of Ceylon, MacGregor of Fiji, Numa Rat of the Leeward Islands, Charlouis and French colonial surgeons, that we owe our present knowledge of it.

* *Literature.*—*Yaws*, by J. Numa Rat, with preface by J. Hutchinson (London: Waterlow, 1891),—the best account, with bibliography to 1887, which has appeared. Gavin Milroy, Report on Leprosy and Yaws in the West Indies in 1873; also in *Med. Times and Gaz.*, November 1876 and February 1877; also January 1880, an article by Nicholls, and, in April 1880, an article by Bowerbank. In *Brit. Med. Jour.*, vol. ii. (1881), p. 712, is a good article on Paranghi, abstracted from Kynsey's Report to the Government of Ceylon: the Report itself, with an excellent series of original drawings, is in the library of the College of Physicians. Hirsch's *Handbook of Geographical and Historical Pathology*, Syd. Soc. ed., vol. ii., p. 110, contains a good account of yaws and button scurvy, with bibliography.

Numa Rat, from whom the following account is chiefly taken, like Kynsey, divides the disease into four stages—incubation, primary, secondary, and tertiary.

The incubation stage is taken from the date of infection to the first appearance of the local lesion at the site of inoculation, and varies from three to ten weeks, the former being the usual period. There is some dryness and branny desquamation of the skin, especially round the lesion, which may persist into the later stages; beyond this, there are only vague symptoms, perhaps palpitation, vertigo, and œdema of the limbs and eyelids. The primary stage is that of the initial lesion, and consists of a papule, which at the end of seven days has a yellow discharge; in another week, the fluid dries into a scab, beneath which, is an ulcer with perpendicular edges and clean base. This heals in a fortnight under treatment, leaving only a superficial scar, or it may take two months without treatment. Less commonly, the papule may slough out, leaving a clean ulcer the size of a florin, or it may be a non-ulcerating nodule, which becomes absorbed with desquamation over it, or it may be deep-seated, and ultimately discharge through several minute openings. Finally, the local lesion may be, if not missed altogether, unobserved. The initial lesion is most frequently found on the lips, areola of the breast, the groin, genitals, or perinæum.

The secondary stage usually comes on about a fortnight after the sore has healed, *i.e.*, about a month from the onset. There is intermittent fever, usually of a quotidian type, with headache, backache, and shooting pains in the limbs and intercostal spaces like those of dengue, and with nocturnal exacerbations. Albuminuria, hæmaturia, and epistaxis may be present. In adults, the general symptoms may be slight. The eruption, which appears with the general symptoms in a typical case, consists of minute red spots like lichen tropicus. It appears first on the face, and develops from above downwards, so that the whole body is covered at the end of three days. Many of the spots enlarge to distinct conical papules, but the greater portion fade after the third day. By the seventh day, the apex of the papule is of a pale yellow colour, which Rat considers to be inspissated sebum, and a black skin has the appearance of being dotted over with yellow wax. The papules then develop into nodules of a cylindrical shape, with a dome-shaped thick yellow crust, the whole, in a typical fully

developed lesion, being $\frac{1}{4}$ in. across and $\frac{1}{8}$ in. high. Underneath the crust is a mass of granulation tissue, covered with a creamy acid secretion, and the whole looks like small pieces of pickled cauliflower an inch apart. It is only with the crust off that there is any resemblance to the raspberry, and as anæmia advances the colour fades to yellow, and even white. This full development takes about a fortnight. During the next four weeks, it then shrinks down until the scab is on the skin, but brown and dried up, soon falling off, and leaving a pale macula, which in dark races gets darker than the normal, but in pale races remains paler than the natural skin, and in either case, is scarcely ever obliterated. Intense itching is almost always present, and there is a sour, musty odour, which becomes offensive in severe cases. More or less intense anæmia is also a constant symptom.

Such is the course of the disease in a healthy infant or child in which the disease runs an acute course, and seldom recurs; but in adults, it has a tendency to become chronic, and produce the later lesions of the tertiary stage. In unhealthy subjects, the nodules may coalesce into widespreading superficial ulcers, which interfere with the usual course of the disease.

Variations.—The nodules may vary in size and number, may coalesce into a large patch of granulation tissue under a single crust, or they may form rings round the eyes, nose, mouth, or anus (**ringworm yaws**). In the last position, the crusts get rubbed off, and then the lesions resemble the mucous patches of syphilis. In unhealthy subjects, instead of the nodules being absorbed and healed in six weeks, they will go on for nine months or more if untreated, or they may break down into ulcers, which, however, readily heal under treatment. On the palms and soles, the horny covering prevents the protrusion of the nodules, but they are painful on pressure, *e.g.*, in walking; hence the "crablike gait," and a perforating ulcer on the ball of the great toe may ensue. Lesions may also be produced on the nasal mucous membrane or auditory meatus, and produce great pain.

Sometimes the nodules abort, leaving a persistent scaliness, with loss of pigment, or follicular pustules may form below the elbow or knee, and persist after the usual nodules have gone. There is no alopecia or other damage to the hair, except on the site of the lesions, where the follicles are destroyed. Onychitis sometimes occurs, with shrivelling and irregularity. Muscular contractures,

probably from infiltration, and nodes may appear on the cranium, clavicle, ribs, ulna, tibia, and metatarsal bones during the secondary period. The tertiary period occurs in those who have a special predisposition, constitutional debility, or who have bad hygienic surroundings or have had injudicious treatment. The lesions are no longer limited to the skin, but involve the deep tissues. Then the superficial ulcers get deep and lose their characteristic crusts, and heal with distorting cicatrices, the neck, front of the elbow, wrist, back of the hand, and instep being favourable positions for them.

A serpiginous ulceration may occur several years after the secondary period. Successive rings of nodules, which ulcerate and heal, may form round the ankle, and leave narrow cicatricial concentric rings. Granulation nodules, as in the secondary period, may also be formed, and nodules like syphilitic gummata often break down into ulcers, especially about the ankle or instep, or they may remain unchanged for months, and eventually be absorbed, but are prone to recur unless completely destroyed. Other late manifestations are: destructive ulceration of the nares, pharynx, and soft palate, which are chiefly seen at puberty after yaws in earlier life; diffuse chronic periostitis, as well as the nodular form of the secondary period, may occur with great pain; dactylitis and arthritis may be seen; permanent contractures also are seen at this period; anæmia and marked cachexia are present in severe cases, and death may occur from exhaustion, pyæmia, septicæmia, or intercurrent inflammations, but it is seldom fatal if properly treated, and it is often remarkable that the lesions may be severe, with very little disturbance of the general health.

Etiology.—A tropical climate is an essential factor for the disease, which occurs in both sexes, at any age, but is most common in children from one to twelve years old. Among predisposing influences, race comes first, negroes being especially liable, East Indians and Caribs also get it; while mulattoes, creoles, and other hybrids are less often attacked, and it is rare in whites. It is never congenital, and the modern tendency is towards disbelief in its being hereditary.

It is, however, undoubtedly contagious, inoculable through an abrasion or sore, and even, it is said, through sound skin, flies being often the carriers of contagion, though some experiments on paranghi are adverse to its being inoculable. The disease is pro-

tective as a rule, but Nicholls and others have met with instances of second, and even third, attacks. Much has been attributed to the bad hygienic conditions in which negroes live, but these have only an indirect influence, aggravating the form of the disease, but not producing it, as it does not occur under the same conditions everywhere, but is strictly endemic.

Pathology.—It is undoubtedly due to a specific, infectious virus, modified by race and climate, but whether *sui generis* or that of syphilis is a moot-point still, Hutchinson and many others holding that it is so, but most who have observed it in its native haunts consider it an independent disease, though it has many analogies to syphilis. No micro-organism has yet been shown to be the pathogenic agent.

Anatomy.—The anatomy has been investigated by Charlouis, Pontoppidan,* Paulet, Ferrier, Rat, and others. Charlouis found that the process was at first that of a dermatitis, confined to the papillary layer, gradually extending into the corium, and involving the appendages of the skin. A considerable portion of the epidermis was thrown off, the part of the rete still left being infiltrated with leucocytes. The exciting cause of the inflammation could not be discovered. Pontoppidan thought the process began in the rete, and found no changes deeper than the papillary layer.

Diagnosis.—The most characteristic features are the initial papule, which enlarges to fungating nodules with an acid secretion, and covered by a yellow crust. When this is removed, it leaves bare the raspberry-like tumour, which remains stationary for weeks or months with yellowish discharge, not painful on pressure, and tending to heal spontaneously without scarring, unless irritated into ulceration, or in cachectic conditions ; the disease, as a whole, tending to spontaneous recovery, except in bad hygienic conditions. Loos and others have endeavoured to separate the *paranghi* of Ceylon from West Indian yaws, but the supposed distinctions break down on close examination. The button scurvy of Ireland is also admitted to be a form of yaws. The differences from syphilis, according to Numa Rat, are principally the fungous eruption with acid secretion and the absence of enlarged glands (these, however, are mentioned by some authors). Other differences are, no induration of the initial lesion, which is never phagedænic, and usually extra-genital. The secondary eruption is not symmetrical or poly-

* *Viertelj. f. Derm. u. Syph.*, vol. ix. (1882), p. 201.

morphous, but with constant characters, and never pustular. The lesions of the mucous membranes are never present until after the secondary stage, generally years after. No alopecia or other hair change, no eye changes such as iritis, no ulcers of tongue, anus, or rectum. Mercury is injurious in the primary and early part of the secondary stage, and iodides are much less efficacious than in syphilis in the tertiary stage. In yaws, the following characteristic symptoms of hereditary syphilis are absent: notched teeth, rhagades round the mouth, mucous patches, enlarged spleen, pemphigus of palms and soles, osteophytes and epiphyseal enlargements, eye and ear lesions. Even these are not the only differences; one very notable feature being, that, when yaws is not injudiciously treated, the lesions are limited to the skin, and less frequently to the mucous membranes.

Treatment.—Improved hygienic conditions are always most important. The most careful cleanliness, and nutritious but unstimulating diet, tonics, diaphoretics, and, locally, disinfectant applications, carbolic or boric acid lotions, and diluted nitrate of mercury ointment, are recommended by Imray, who also suggests, that at first, sulphur and acid tartrate of potash should be given for a week, to bring the eruption out thoroughly, as when it fails to develop well in the early stage, the patient becomes cachectic, and septic symptoms may ensue.

Rat lays great stress upon healing a previously existing sore, if it is the site of inoculation, as it prevents the development of the eruption. He also recommends iron, preferably the tartrate, and cod-liver oil, and for the febrile condition, quinine or salicylate of soda. He is a strong advocate for diaphoretic measures after the febrile symptoms have subsided, ammonium carbonate being preferred on account of its being alkaline as well as stimulant and diaphoretic; and he lays great stress on promoting alkalinity of the secretions. For the characteristic nodules, he recommends sulphur baths, natural or artificial, and calomel fumigations. After the nodules have dried up, iodide of potassium and tonics should be given for another six weeks. If the lesions are obstinate, Donovan's solution in doses of ♏v to ♏x is recommended. In the tertiary stage, Rat still gives mercury and iodide of potassium combined, or the calomel fumigations and full doses (gr. 15) of iodide. He believes that, as in syphilis, mercury alone cures, iodides only alleviate. All are, however, agreed that it should not be

given in the early stage, and that its administration requires care and watchfulness, or it will do more harm than good.

The various sores are best treated by washing with weak perchloride of mercury lotion, and the application of iodoform, either dry or as an ointment. Black wash is also often useful.

VERRUGA PERUANA.*

Deriv.—*Verruga*, Spanish for a wart.

Synonym.—Peruvian wart.

This disease is mentioned as early as 1548 by Zárate, in his History of Peru. It is a narrowly endemic disease, with occasional epidemic outbreaks, being confined to the narrow gorges of the Western Andes in Peru;† and it is not in any way connected with yaws, with which it is usually confounded, the single fact that whites suffer more frequently and severely than negroes or Indians being an important distinction, enough to separate the two diseases. Verruga is certainly inoculable,‡ and it is highly dangerous to stay in the diseased centres even for a short time, but this is possibly analogous to the effect of malarious miasma. It appears to be an acute specific affection.

Symptoms.—The outbreak of the eruption is preceded for some weeks or even months by severe febrile symptoms, of which a cramp-like contraction of the gullet is the most characteristic. These symptoms remit or vanish with the appearance of the eruption, which begins on the face and limbs and spreads over the rest of the body, with abatement of the general symptoms. It consists of lentil to pea-sized, raised spots, which develop into cylindrical, conical, or hemispherical tumours, from a rasp-

* *Literature.*—Hirsch, *loc. cit.*, vol. ii., p. 114, from which this account is taken. Plate xli., Frambœsia, *Sydenham Society's Atlas*, represents this disease,—an account of the case is given p. 145 of the catalogue. Beaumanoir, "De la verruga," *Archives de Méd. Navale Coloniale*, January 1891, p. 1. A good abstract in *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 818.

† In *Lancet*, November 10th, 1883, Dr. de Havilland Hall describes a peculiar disease met with at Zaruma in Ecuador by Mr. Aldridge, which corresponds in many respects with verruga.

‡ In the *Lancet*, 1886, is a case of a Peruvian medical student, who experimentally inoculated himself, was taken ill on the twenty-second day, and died on the thirty-eighth.

berry to a pigeon's egg, or even an orange in size. The consistence is soft or elastic, according to the rate of development, and *the surface is tender*, thus contrasting with painless lesions of yaws. The epidermis thins over the tumour, cracks, and bleeding is easily induced, very copious, difficult to control, and producing profound anæmia. The tumours may either dry and shrivel up and peel off, or disintegrate into ulcers. The number of the excrescences ranges from one to several hundreds, of all sizes, most abundant on the extremities, face, scalp, and neck, sometimes on the palms and soles, but rarely on the trunk. They may be subcutaneous, choosing then the elbows and knees, or the legs and ankles. They may be absorbed or break down into ulcers, which fungate and have an offensive discharge. The mucous membranes may also be involved, and hæmorrhages may occur both from the mouth and anus, but probably the viscera escape. The disease generally lasts two or three months, sometimes more, but it may be fatal earlier from hæmorrhage.

In cases which survive, there may be left profound anæmia, dropsy, or nervous complications. The mortality is from 6 to 10 per cent. in the natives, 12 to 16 among whites, or in epidemics 40 per cent. The lesions consist of highly vascular, connective tissue, cavernous tumours, which take their origin from the superficial or deeper layers of the corium. Izquierdo has found a bacillus larger than that of tubercle in the tissue interstices, as well as in the vessels which may be occluded by them; whether it is really the materies morbi remains to be proved. Large doses of perchloride of iron were successful in the treatment of the analogous cases of Mr. Aldridge of Zaruma. As in yaws, it is considered advisable to encourage the development of the eruption.

FURUNCULUS ORIENTALIS.*

Synonyms.—Oriental boil; Aleppo boil; Delhi boil; Biskra or Biscara button; Gafsa button; Kandahar sore; Pendjeh sore; Natal sore, etc.; *Fr.*, Clou de Biskra; *Ger.*, Orient-beule.

* *Literature.*—"Delhi and Oriental Sore," by Dr. J. Murray, *Trans. Epidem. Soc.*, vol. ii. (1883), p. 90,—a good account with photographs. Hirsch, *loc. cit.*, vol. iii., p. 668, with bibliography.

Definition.—A local disease, occurring chiefly on the face and other uncovered parts, endemic in limited districts in hot climates, characterised by the formation of a papule, a nodule, a scab, and under the last, a sharply punched-out ulcer.

This disease is common in certain districts of tropical and sub-tropical climates from 23° to 45° N., and from 2° W. to 80° E. The local names indicate most of the localities, to which must be added the southern and eastern littoral of the Mediterranean, Crete, and Cyprus.

Symptoms.—It is an entirely local disease, unattended by constitutional disturbance, but it has a period of quiescence after inoculation of from three days to several months. It occurs chiefly in uncovered parts, especially the face, any part of which may be attacked, but the cheeks, angles of the mouth, alæ of the nose, and the orbits are the favourite seats. The scalp is never attacked; it may occasionally be seen on the extremities, especially the back of the hand or foot, but is quite exceptional on the trunk or pubes. Commonly, there is one so-called boil, but there may be several, and as many as fifty have been counted scattered over the face and body. It begins as a red papule, like an irritated mosquito bite, gradually enlarges to the size of a pea or bean, but remains of a dull red colour, and the surface is undisturbed, smooth, and shining for weeks or months, but with a lens, the red surface can be seen to be studded with deep-seated, yellowish-white points like milium. Then, from a small central aperture, thin, clear serum begins to ooze, and dries into a closely adherent brown crust, which gradually enlarges in thickness and area. Beneath this scab, the nodule gradually disintegrates, until a round ulcer from three-fourths to two inches in diameter is formed, with a red areola beyond. The edges are sharp and irregular, the ulceration may penetrate into the subcutaneous tissues, the floor is uneven, fungating in one part and disintegrating in another, secreting a thin offensive pus, which, if allowed to dry, forms thick, adherent crusts. After some weeks or months, the fungoid granulations give place to more healthy ones, which gradually fill up the excavation more or less completely, and the sore ultimately cicatrises, the scar being more or less puckered towards the centre, and pigmented of a uniform brown colour; the whole process lasting six to twelve months, but occasionally years. Secondary complications may occur, such as lymphangitis or erysipelas,

and glandular enlargements, and it is only in these, or when it occurs in leprous or otherwise cachectic individuals, that any serious symptoms arise. After cicatrisation, the scar may be very disfiguring, and by contraction, produce ectropion, etc., on the face, and cripple the joints when on the limbs. Recurrences may be seen either on the site of an old sore or fresh boils may occur in other parts years after the original ones have healed. This probably indicates re-infection from without.

Etiology.—No sex, race, age, or nationality gives exemption when brought within its influence. At the same time, it is most common in children after the second year, rarely appearing before that, and in Aleppo, few native children reach the age of seven without having had it; it may, on the other hand, affect people of forty or fifty, or even older. As a rule, strangers do not get it until they have been some time in the district, but occasionally, only a few days' sojourn is sufficient, and in some people, like leprosy, it only appears after they have left the district. Its strict limitation indicates that climate has some influence, but it is usually considered to be independent of the nature of the soil. Besnier, however, disputes this, and Tilbury Fox considered that it was of malarious origin. It is seen chiefly in the latter part of the summer and in autumn, *e.g.*, in September, October, and November in sub-tropical climates, and in the first part of the cold season in the tropics. Numerous theories have been put forward to explain how it is excited, and a considerable body of evidence favours the idea that it is the water of the district, which contains the infecting parasite; and the members of the Government Commission to investigate the Delhi sore were of opinion that it gained access to the body, not by drinking the infected water, but through some abrasion or scratch while washing or bathing in it. This Commission, of which Dr. J. Murray was president, and since that Depéret and Boinet also, have definitely proved that it is inoculable both in men and animals, and flies and other winged insects are plausibly considered by Laveran to be frequent carriers of the infection. There is no reason to believe it to be hereditary.

Pathology.—The balance of evidence is in favour of its being an infective and destructive inflammation, set up by a vegetable organism, but, in spite of numerous investigations, the exact organism has not yet been demonstrated. Smith's, Flemming's,

and Carter's observations were clearly erroneous. Cunningham's monadines (refractile bodies larger than lymph corpuscles), according to the most recent investigators,* Riehl and Paltauf, are the same as the hyaline globules which they have described, and not, therefore, parasites at all.

Depéret, Boinet, and Duclaux, however, have found micrococci, but not the same, neither were they from the boil itself, but from blood near it, and inoculation with culture fluid failed to produce the disease; for though suppuration and even death in animals was produced, the symptoms were very different from Oriental boil. Paltauf's inoculation experiments were also negative. Leloir † has obtained an organism similar to those of Duclaux and Heydenreich, and considers it in all probability the pathogenic agent; it consists of cocci in twos or conglomerations. On the other hand, Geber,‡ who investigated the matter at Aleppo, believes that there is no specific disease at all, but that it is a medley of syphilitic, lupous, strumous, and other ulcers, all classed as the one disease. Although, doubtless, such errors are often made, there is strong evidence that there is an endemic ulcer *sui generis*.

Diagnosis.—In the district where it is known to be endemic, there would be no difficulty. The isolated papule developing into a nodule, and this exuding, crusting, and then disintegrating into an ulcer under the crust, and its situation on the face or other exposed part, constitute a distinctive set of symptoms; but as so experienced an observer as Murray considers this affection identical with yaws, it may be as well to compare the two affections, which doubtless have some points in common, but have many important differences.

Yaws is preceded by febrile symptoms; Oriental boil by none. In yaws, the lesions are always multiple and often in crops; the boil is single as a rule, and if more than one, they are rarely numerous; while both attack the face, yaws prefers the palms and soles; the boil, the back of the hands and feet. The lesions of both, are papules succeeded by nodules, but in yaws, the epidermis

* "Zur Anatomie und Ætiologie der Orientbeule," *Viertel. f. Derm. u. Syph.*, vol. xiii. (1886), p. 805, gives a good summary of previous investigations on these points.

† Leloir et Vidal, 1re livraison, plate vi., 2me liv., p. 87; also Loustalot, "Le bouton de Biskra," *Thèse de Lille*, 1888, contains Leloir's observations.

‡ *Archiv f. Derm. u. Syph.*, 1874, Heft iv.

splits off in a few days, and the whole eruption is developed in from two to four weeks, but the nodules of the boil remain unchanged for weeks or months. When the crust of the boil is removed, an ulcer is exposed; when that of yaws is removed, a moist tumour is brought into view, and yaws never ulcerates, except when irritated, and in cachectic subjects. The yaws tumours dry up and fall off, leaving no scar; the boil necessarily leaves a deep scar. Finally, yaws is almost limited to the coloured races, especially negroes, while the boil attacks all within its sphere of influence.

Prognosis.—This is decidedly good for recovery, a fatal issue being rare, and only in very cachectic individuals; but disfiguring and disabling cicatrices may be left, unless the case comes early under treatment. The patient is not, however, protected either from recurrences or fresh inoculation.

Treatment.—In the early or "mosquito bite stage," Murray recommends the actual cautery to completely destroy it; when available, Paquelin's or the galvanic cautery would be the most convenient means for the purpose, but it is seldom seen in this stage. I should be inclined to try 10 per cent. carbolic acid injections in the same way as for carbuncle, round the boil area before it has broken down. Woolbert, practising in Meshed, Persia, where the disease is very common, finds that, when the whole boil area has ulcerated, scraping away the granulations and applying nitric acid produces rapid healing. Other caustics, such as caustic potash, or the fuming acid nitrate of mercury, solid nitrate of silver, or pure carbolic acid, are also useful. After destruction of the diseased tissue, the ordinary treatment for simple ulcer is sufficient, *e.g.*, carbolised or boric lint, or corrosive sublimate lotion, under oiled silk, or iodoform dressings may be applied. The prophylactic treatment is to avoid the infected water, both for washing and drinking, unless it has been boiled. Dr. G. Ranking,* like Fox and Besnier, regards the ulcer as of malarial origin, and says that if large doses of arsenic or quinine are given, the ulcer heals readily with the simplest local treatment. Frog-skin grafts greatly expedited cicatrisation in large ulcers.

* *Lancet*, August 27th, 1887, p. 413.

PHAGEDÆNA TROPICA.*

Synonyms.—Tropical phagedænic ulcer; Aden ulcers; Malabar ulcers, etc.

We owe our knowledge of this formidable affection chiefly to French writers, especially in Cochin China, where it is very rife and malignant. Parke also gives a good account of it, as seen in the Emin Pasha Expedition. It is met with in tropical latitudes all over the world—Asia, Africa, the West Indies, and Central America—and, to some extent, in more temperate climates, such as Algiers and Egypt, while it is especially rife and malignant in Cochin China, Tonkin, and the islands and shores of the Red Sea. It attacks chiefly those who are under depressing influences, such as are due to malaria, privation, over-fatigue, etc. Then the smallest lesion which produces a breach of continuity of the skin gives entrance to the presumptive microbe, and a vesicle or bulla soon forms, and from this the destructive process radiates both laterally and vertically.

In the worst cases, to quote from Parke, "rapid phagedænic ulceration spreads from the seat of origin of the disease; the soft parts all yield in succession, but some much more slowly than others. An ashen-grey slough covers the affected surface; the skin and subcutaneous tissue rapidly disappear, and expose the sheaths of the muscles; the muscular tissue itself decomposes more slowly; the nerves and arteries are destroyed only after a prolonged resistance; the tendons soon lose their muscular attachments, and hang about in shreds," and eventually even the bones are attacked, and the superficial layers exfoliate. The liability to slight injuries of the lower extremities, especially in barefooted natives, explains why the ulcers generally begin on the feet, the ankle, or leg, but the thigh is occasionally attacked, and even the upper extremity has been affected. In a milder form, there are only atonic ulcers, which remain superficial. The primary lesion having passed through a stage of inflammation and induration, followed by molecular disintegration, and this

* *Literature.*—Hirsch, *Phagedænic Tropical Ulcers*, vol. iii., p. 690, Syd. Soc. Ed., with bibliography. "De l'ulcère phagédénique observé au Tonkin," E. Boinet, with references, *Ann. de Derm. et de Syph.*, vol. i. (1890), p. 210. "The Ulcer of the Emin Pasha Relief Expedition," T. H. Parke, *Lancet*, December 5th, 1891.

perhaps by sloughing, then the activity of the process diminishes, leaving an indurated atonic ulcer, which extends but slowly, and after a variable period of weeks or months gradually cicatrises, though it may break down again if the patient's circumstances are unfavourable.

Etiology.—Although most common among the coloured races who inhabit these hot countries, white people are also attacked, but less severely. It is always worse in damp, malarial, low-lying districts, but it also occurs in non-malarial regions, such as New Caledonia and the highlands of Abyssinia. It is therefore probably the cachexia induced by malaria which offers a favourable soil, and thus scurvy, famine, and physical exhaustion are also favouring factors.

Pathology.—Boinet believes that he has found the pathogenic microbe, which he has cultivated and inoculated successfully into animals; he has also obtained clinical proofs that the pus is inoculable, and compares the disease to the Oriental boil. The water of the rice fields has been supposed to contain the microbe, but that is at most, only one of many sources.

Treatment.—Improved hygienic conditions are most important; rest, good food, quinine, and other suitable tonics are clearly indicated. Locally, for the severe forms, scraping, the actual cautery, and various caustics are recommended by French writers, but Parke found that pure carbolic acid succeeded rapidly and perfectly, "leaving, when the slough separated, a healthy granulating surface." In milder forms, the indication always is to render the sore aseptic as soon as possible. Parke found permanganate of potash most useful, and when he was hard up for that, gunpowder acted efficiently. These remedies suggest iodoform and its congeners as most likely agents. Salicylic acid, boric acid, and pyrogallic acid also have advocates. Probably in nearly all cases, the application of strong carbolic acid, and subsequently iodoform or sublimate dressings, would fulfil all requirements.

CLASS VII.

NEUROSES—SENSORY DISEASES.

NEUROSES CUTANEÆ.

As a matter of practical convenience, the neuroses of the skin are restricted to disturbances of its sensory innervation, the symptoms of which are entirely subjective, the changes being functional only; any visible effects, such as may be due to scratching, are secondary or accidental.

These affections come under excess or diminution of sensibility, *i.e.*, hyperæsthesia, dermatalgia, pruritus, and anæsthesia.

HYPERÆSTHESIA.

Exalted sensibility of the skin may be idiopathic or symptomatic; practically nearly all cases are symptomatic. It may be general or local, perhaps restricted to one nerve domain, symmetrical or unilateral, and due to functional or organic disease of the nerve centres, trunks, or peripheral terminations, and of an irritative, rather than of a paralytic kind. The chief cause with which dermatologists have to do is hysteria, and even then it is only one of many phenomona attending that condition. It is, however, seen at the onset of non-tuberculated leprosy, generally in the course of the ulnar or sciatic nerves. The surface may be so sensitive that the slightest touch even of the clothes is painful; and changes of temperature, or a mere breath of air, produce more or less discomfort, and in hydrophobia, a characteristic and painful spasm. Its duration depends upon its cause; in hysteria, for example, it may shift its position from one side to the other, and come and go in an inexplicable manner. There are, however, a few cases in which there is no apparent cause, and these are classed as idiopathic.

DERMATALGIA

Synonyms.—Neuralgia of the skin; Rheumatism of the skin; *Fr.*, Dermalgie; *Ger.*, Nervenschmerz der Haut.

Definition.—Pain in the skin, not consequent upon structural change in it.

Piorry, Beau, and Axenfeld have specially studied this condition. While in a few cases it appears to be primary, more frequently it is due to some organic disease of the nerve centres, especially locomotor ataxy.

In a considerable number of cases, there is a history of rheumatism, as was first pointed out by Beau, and exposure to cold has been the direct exciting cause. Chlorosis has been present in some cases, and hysteria in many, while in others there has been no defect in health. Organic disease of the sensory centres, or paths, in the brain and cord are responsible for nearly all the rest.

It is usually strictly and limitedly local, but may be general, and it is more common in hairy parts and in women. There is nothing to be seen; there is simply spontaneous pain, constant or intermittent, and of all grades of severity; it is of a superficial character, and accompanied by more or less hyperæsthesia, though firm pressure will sometimes relieve it; burning, pricking, shooting, or boring sensations have been met with by Duhring, and the pain is generally worse at night. The disease may last for an indefinite time, and even when apparently well is liable to relapse.

This condition is distinguished from mere hyperæsthesia by the pain being spontaneous, as well as easily excited, and more limited in area as a rule, and it is distinguished from ordinary neuralgia by its being superficial, and accompanied by hyperæsthesia. **Causalgia**, or the burning sensation symptomatic of the glossy skin, is an allied condition.

Weir Mitchell has also described a case affected with what he terms **erythromelalgia**; there was a burning and then aching pain in the second toe, spreading to the other toes, and followed by reddish, patchy discoloration of the skin; the pain was always worse when the foot became warm, and was cured by amputation of the toe first affected. The patient was a blacksmith, æt. fifty-

three. Morel-Lavallée * records a similar case affecting the hands of a woman, who was also the subject of Raynaud's disease in a mild form. There was no antecedent pain, only intense burning, excited by external warmth or digestive disturbance. The disease had lasted twenty-two years.

Treatment must depend upon the cause. Where no disease of the nerve centres or other definite reason can be found, rheumatism is the probable source of the mischief; salicylate of soda or of quinine may be tried, with vapour or Turkish baths, if it is widespread; but shampooing could scarcely be borne in the more localised forms. Beau recommends that the part should be blistered, but the better plan is to blister or apply a mustard leaf over the centre from which emanates the nerve supply to the affected part. The application of the menthol cone to the part would probably give temporary relief. In many cases, the pain subsides spontaneously in a few weeks.

PRURITUS.

Definition.—A functional defect of innervation, in which itching is the only direct symptom.

Much confusion arises from the terms prurigo and pruritus being frequently used as if they were synonymous. Here pruritus is used, not in reference to it, as a symptom of a large number of skin diseases, such as eczema, urticaria, etc., but where the subjective sensation of itching is the sole symptom of the disease, though there may be secondary lesions where the scratching has been very energetic, the signs of which have already been described under "The Scratched Skin" (p. 10). In the greater proportion of cases of general pruritus, although the itching is considerable, the secondary manifestations are absent, the skin appearing quite normal. In the majority of cases, itching is complained of, but sometimes tingling, formication, or other modification of the sensation is described by the sufferer, and while, in some cases, it is only a trifling inconvenience, in others it produces profound misery, less endurable almost than pain, and inducing such depression of mind, as to result even in insanity. Bronson † argues that there

* *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 708.

† "The Sensation of Itching," by E. B. Bronson, *New York Medical Record*, October 18th, 1890.

is a special sense of contact apart from that of ordinary touch, and that pruritus is the result of disturbance of this sense of contact.

Symptoms.—Pruritus may be general or local. In the general cases, **Pruritus Universalis**, the itching is not all over at the same moment, but now one, now another part itches, and no sooner is it better in one place, than it is worse in another. There are, however, great variations in duration; sometimes it is practically constant, at others there may be intervals of relief, but all cases are worse at night, where it pursues the patient even into his dreams, giving them what may be called a pruritic impress.

Exposure, either to heat or cold, will generally excite it.

In the local forms, although any part may be attacked, the genitalia and anus are the favourite regions, and hence we meet with the terms P. vulvæ, scroti, and ani, as if they were special diseases; but the scalp and face are not very uncommon positions, and in the latter, it is felt chiefly about the nose and mouth.

In **P. Vulvæ**, the itching may affect the labia, vagina, and clitoris, individually or collectively, and is, in some cases, so constant and severe as to quite unfit the patient for all social duties, and it becomes, therefore, a very serious affection.

In man, the **scrotum** is the part most frequently affected, but the perinæum and even the anus are often involved; in a few cases, the orifice of the urethra is the part attacked.

Pruritus Ani is a very common affection in both sexes and at all ages, and is often so intense as to goad the patient to the most violent scratching; consequently, excoriations and more or less eczema are very frequent concomitants, and bring their own aggravation. The itching may be confined to the outside, or affect the inside also.

Occasionally, the pruritus is localised in the palms and soles, or in the course of a nerve—*e.g.*, I have met with an instance in an elderly woman in which the pruritus was limited to the distribution of the sciatic, which was speedily relieved by the application of mustard leaves over the hip.

Etiology.—This is very important, as the success of the treatment depends upon its correct determination.

General pruritus in the aged (**P. Senilis**) is a symptom often accompanying senile degenerative changes in the skin (see p. 424), and is sometimes especially intense in the "senile warts," previously

described. In adults generally, always excluding such conditions as urticaria, pediculosis, and scabies, the most common cause is hepatic derangement, whether functional, as seen in the lithæmia of Murchison, or organic, especially after ordinary jaundice, in which, independent of the cause, the itching is often very severe and persistent, though it seldom comes on before the jaundice has been present for some time or is declining. The next most frequent causes are, disorders of the alimentary canal, such as dyspepsia, with or without constipation, kidney diseases, such as albuminuria, chronic Bright's disease, and diabetes mellitus. Ovarian and uterine disorders, and pregnancy sometimes originate it. In the last, when it has once been present, it is very likely to recur at any subsequent pregnancy.

Depressing mental influences play a certain part in the etiology, and under this head may be included those cases in which the patients, generally of the better classes, have suffered, or imagine, on more or less good grounds, that they have suffered, from scabies, or pediculosis, but whom nothing will persuade that they are not still infected, however long and effectually they may have been treated. Such cases of what might be called "pruritus mentis" are often on the borderland of insanity, and may end in actual melancholia.

Local Pruritus is often dependent on a local cause. Pruritus vulvæ in children is generally due to ascarides in the rectum, and sometimes in the vagina itself. Other causes of irritation of the lower bowel, such as catarrh, scybala, etc., may also produce it. In adults, it may be due to uterine or ovarian derangements, functional or organic, or a concomitant of vaginitis and urethritis, and is often present only at, or much aggravated just before or during, the periods; but it is still more frequently present as one of the neuroses, to which women are liable at the climacteric age. Diabetes mellitus is another cause, chiefly in middle life, but in all cases, the urine should be tested, eczema vulvæ being then invariably present also; indeed, in all cases, eczema is a cause or consequence. Finally, in many cases, no cause is discoverable.

Pruritus Ani is most commonly the result of hæmorrhoids, either external or internal, or of the causes which produce them; constipation and fissures are other frequent sources of the irritation; the decomposition of the sweat, in those who perspire freely, aggravates if it does not cause it. Both P. ani et pudendi in

both sexes may also be due to pelvic tumours obstructing more or less the pelvic veins, and inducing, therefore, a local congestion.

Pruritus Scroti and of the pudenda generally in men is not common, except as the result of eczema, which is not necessarily very pronounced.

P. Palmæ et Plantæ is rare ; it may occur either with or without hyperidrosis. Many of the patients are gouty ; in women, it is occasionally seen in association with uterine disorders. Season has a certain influence in some cases ; some patients suffer from itching in summer only (*P. æstivalis*), others in winter (*P. hyemalis*), on which Duhring,* and Corlett in America, Hutchinson in England, Obersteiner in Austria, and Dubreuilh † in France, have written papers. They consider it a distinct affection ; it may be general, but usually is confined to the lower extremities. I have met with a few instances. One patient, a plumber, æt. twenty-nine, had suffered every winter for six years, the pruritus being general, lasting as long as the cold weather. There were no objective signs, and no evidence of lead-poisoning or gout, except that his urine was frequently loaded with lithates. Sulphur baths gave him most relief, but internal medication had but little effect. In children, itching of the thighs and legs is often experienced in cold weather. The skin is slightly red and rough. The affection is really a slight eczema. Xerodermatous children are especially liable to it.

Pathology.—As already intimated, the disease is a sensory neurosis, due to a direct or reflex irritation of any part of the nervous system, from the centre to the periphery of the part affected, and not accompanied by any appreciable lesion of the skin nerves.

Diagnosis.—This resolves itself into the diagnosis of the causes of the itching, and familiarity with the etiology is therefore essential. As a matter of practice, when a patient complains of general pruritus, the first thing to do is to exclude parasitic irritation whether of bugs, fleas, gnats, lice, the itch acarus, or harvest bug, etc. ; nine times out of ten, however, the parasite is the pediculus in an elderly person, or the scabies acarus at any age. The position of the scratch marks will go a long way towards

* Duhring, *Phil. Med. Times*, January 10th, 1874.

† Dubreuilh, "Prurigo hivernal," *Jour. de Méd. de Bordeaux*, February 8th and 15th, 1891.

deciding this; if they are about the shoulders to any extent, there is a strong presumption in favour of *pediculosis*; if about the hands or wrists, of *scabies*. The other points of diagnosis of these diseases are described under their respective heads. The next most common disease is *urticaria*, and unless the patient is a child, there will very probably be no objective symptoms at the time of examination; the patient's answer to the question as to whether it "comes out in bumps as if stung with a nettle" will settle this point, though it has still to be determined whether the urticaria is the primary cause of the itching, or only the consequence of the scratching. These three diseases being excluded—and it is only in one or other of them that the so-called "pruritic rash" is very marked—investigations into the presence of any *hepatic, digestive,* or *renal* disorder must be successively investigated, the urine in all cases is to be tested, and but few cases will remain that are not referable to one or other of these systems. If the patient is advanced in years, and every other source of itching can be excluded, then, and not till then, the diagnosis of *senile pruritus* remains as a refuge. When the pruritus is local, a careful examination of the part must be made, to exclude any objective source of irritation, and the various causes enumerated under etiology reviewed, until the right one is found, or at least till driven to confess ignorance, after the most careful investigation has failed to reveal the *fons et origo mali.*

Prognosis.—This is good or bad according to the success or failure in finding the cause, and the possibility of reaching or obviating it.

Treatment.—This again depends upon the cause, and, unless it has been discovered, success is not very likely to attend aimless therapeutic efforts. The internal treatment is both dietetic and medicinal, directed to the removal of any hepatic, digestive, renal, or uterine disorders that may be discovered.

The diet should be bland and easily digestible; alcohol should be very sparingly taken, and is often best avoided altogether, and all condiments and sauces should be forbidden.

The bowels in all cases must be carefully regulated; saline aperients are often required at first, and afterwards the bowels must be kept regular by extract of cascara sagrada, the compound liquorice powder, or other suitable laxative; as a rule, aloes should be avoided, where the pruritus affects the anus or pudenda. Alka-

lies, especially bicarbonate of potassium, are generally required for icteric and other hepatic derangements; but it is unnecessary to go into further details, as the internal treatment is in accordance with the general principles of medicine in the treatment of the various disorders, and success seldom fails to attend judicious and persevering efforts, in the several directions indicated. There is, however, one empirical remedy that is sometimes of service, when either the cause is of an organic and irremovable kind, or where it cannot be ascertained. This is cannabis indica, first suggested by Bulkley for senile pruritus; ten minims of the tincture are enough to begin with, but the dose generally requires to be increased up to twenty or thirty minims three times a day, well diluted, and after meals, or it will upset digestion; marked relief is generally experienced, and often complete cure, unless the original cause is still in active operation. It appears to act by diminishing cutaneous sensibility, and in a certain proportion of cases, has acted very satisfactorily in my hands. He also recommends tr. gelsemii in ten-minim doses, repeated every half-hour until ʒj has been administered, unless toxic effects show themselves. Hypodermic injection of one-tenth to one-third of a grain of pilocarpine is said to give as much as a day's relief from the pruritus of jaundice, though there may be a transitory aggravation.

External treatment is always of value, and even when it does not affect the cause of the itching, by giving temporary relief, it enables the patient to abstain from scratching, and this gives the irritated nerve filaments a chance of settling down, while internal or other radical measures are being directed to the origin of their trouble. For general pruritus, lotions of various kinds are of service—at all events, for a time. The majority of them are of the disinfecting class, and it is always desirable to change them from time to time, if only to satisfy the mind of the patient, the mental attitude exercising an important influence on the result. One of the best is the liq. carbonis detergens ʒij to aqua ℥viij, or the liq. picis alkalinus, in the same proportion, is almost equally good; others are terebene ℥j to ℥viij; sanitas 1 part to 2 or 4 of water; carbolic acid 1 in 60; benzoic acid ʒij, aq. ℥viij; thymol ʒij, liq. potass. ʒj, glycerine ʒiij, aq. ℥viij, this is a very good lotion; salicylic acid ʒij, sod. bibor. ʒj, glycerine *q.s.*, mix the acid and borax with ʒiv of glycerine, heat gently until dissolved, then add

glycerine to make up ℥j; this can then be diluted with glycerine, alcohol, or water to any extent, ℥j of the first compound, ℥j of alcohol, and water to ℥viij, is a good proportion; it has the advantage of being free from smell, which is a drawback in the use of most of the others. Perchloride of mercury gr. ½ to gr. 3 to ℥j of water is another good odourless lotion. Camphor chloral (equal parts of each constituent) gave great relief in a case of senile pruritus where the warts were the site of the itching; it may also be used diluted, by applying with a sponge to the itching surface. As a rule, lotions for senile pruritus should contain spirit, about one quarter of spiritus rosmarini, eau de Cologne, or plain spirit, being added to one or other of the above anti-pruritic lotions, the evaporation and consequent cooling of the skin giving great relief. For this reason, menthol gr. 2 to gr. 10 to the ℥j of water relieves this and other forms of pruritus. Chloroform ʒj, glycerine ʒiv, water ℥viij; sodii sulphidi ʒij, glycerine ℥ss, water ℥viij; potassii cyanidi ʒj to water Oj, are other formulæ recommended on good authority. Baths are often very beneficial: alkaline with or without bran or gelatine, and sulphide of potassium, are most frequently successful (see Appendix for formulæ).

For local pruritus, special remedies are generally necessary; the number recommended as always giving relief, testifies to the obstinate resistance to medication frequently offered.

Pruritus Scroti is often best relieved by painting on argentic nitrate gr. 10, sp. ætheris nitrosi ℥j. The unguentum hyd. ammon. gr. 10 or 20 to ℥j is often useful here also. Boric acid lotions are good in many cases. Bulkley's plan, as set forth for eczema scroti, gives several hours' relief, water, as hot as can be borne, being applied for five minutes at a time.

For *Pruritus Vulvæ*, strong lead lotion ʒij or ʒiv to ℥viij is a good one, or nitrate of silver gr. 5 to 30 to ℥j, the stronger lotions being used at intervals of a couple of days, but they stain both skin and linen. A saturated solution of boric acid answers well in many cases; Neale thinks it one of the best remedies. Pixene is strongly recommended by Locke, ʒij to ℥vj of water with ℥ss of glycerine; but the best of all, in my opinion, is the plan recommended by Reeves, the compound tincture of benzoin, B. P., painted on with a camel's-hair brush every night.

P. Ani. Many mercurial ointments give immense relief for the time being. Ammoniated mercury gr. 20 to ℥j of benzoated lard

is a favourite of mine. The yellow oxide of the same strength is often useful, and calomel gr. 10 to ʒss to ʒj is another good one; some combine with these, carbolic acid gr. 10, creasote ♏xv, or camphor ʒss. The oleate of mercury, with or without oleate of morphia, is often beneficial, but stronger applications must be used with caution; the diluted nitrate is another good application. Peruvian balsam, rubbed up with a little vaseline, is often successful.

Morris strongly recommended cocaine as successful in one obstinate case, and others have spoken well of it, but it has not helped me much. Extract of belladonna gr. ½ to gr. 1, in the form of suppository at bedtime, often enables a patient to get off to sleep before the torment comes on; morphia may be added, or given alone. In all cases, especially in those who perspire freely, ablutions with carbolic acid 1 in 60, saturated solutions of boric acid, or with permanganate of potash lotion, are necessary, and of themselves often give relief. If there are external piles, the old unguentum gallæ is often useful for both the piles and pruritus, but painting with hazeline or injections of it are better. These are a few only of many local remedies, but though all are more or less temporarily useful, the mercurial ones are generally the most successful; but permanent relief is only to be obtained, by the treatment suitable for the etiological factor.

In spite of this extensive armamentarium, successful treatment is often very difficult, though few cases are absolutely incurable.

ANÆSTHESIA.

This affection comes under the notice of the neurologist, more than that of the dermatologist.

There are all grades of it, from only slight diminution of sensibility, up to complete loss of sensation to the strongest impressions. It may be general or local, unilateral or symmetrical, hemiplegic or paraplegic, limited to a single nerve domain or affecting several; there may also be analgesia, without loss of tactile sensibility, or intense pain with loss of ordinary sensibility (anæsthesia dolorosa of Romberg), or both may be absent together. Like the other sensory neuroses, it is chiefly interesting from an etiological point of view. It may be idiopathic or symptomatic, and dependent on internal or external causes. The internal causes are either in the

sensory nerve centres, or at some point where the sensory path from the periphery to the centre is interrupted, *e.g.*, in unilateral lesions of the brain surface, or the parts adjacent, locomotor ataxy, traumatic disease of the nerves, syphilis, leprosy, or tumours pressing on a nerve trunk. In leprosy, the function may be disturbed by either nerve trunk lesions or peripheral clogging, so to speak, with leprous infiltration.

Hysterical anæsthesia is not uncommon, and is unilateral, but not always on the same side, changing about under mental influences in the most extraordinary way. Of external causes, cold, however applied, carbolic acid, caustics, cocaine, chloroform, aconite, pressure on a nerve, *e.g.*, the ulnar, are the most common ; while of drugs given internally, choloroform, æther, nitrous oxide, and other anæsthetics, cannabis indica, alcohol in excess, lead, and opium, may be mentioned.

The *treatment* entirely depends upon the cause and its amenability to medical measures.

CLASS VIII.

MORBI APPENDICIUM—DISEASES OF THE APPENDAGES.

A. DISEASES OF THE SWEAT GLANDS.

Affections of the sweat glands are "functional," in which the quantity or quality of the secretion is altered, and "organic," due to obstruction of the duct; the latter may be non-inflammatory, as in

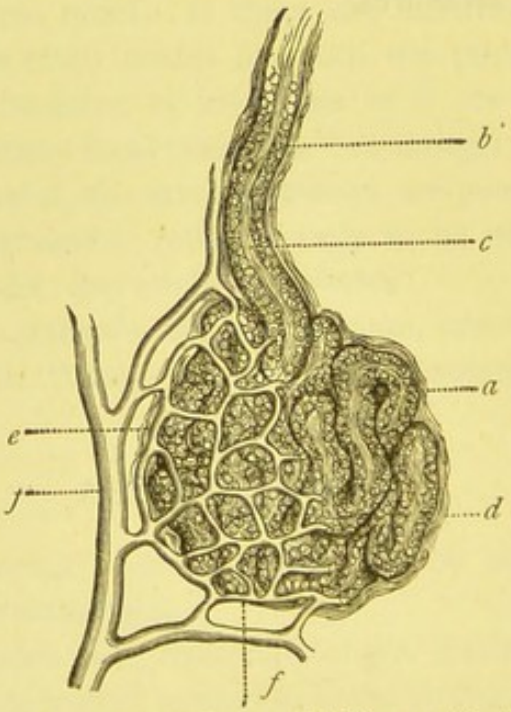

Fig. 52.—A Normal Sweat Gland, highly magnified (Neumann).

a, sweat coil with secreting epithelial cells; *b*, sweat duct; *c*, lumen of duct; *d*, connective-tissue capsule; *e* and *f*, arterial trunk and capillaries supplying the gland.

sudamina, or with inflammation in or around the sweat apparatus, either primary, as in miliaria papulosa, or secondary to the obstruction, as in miliaria vesiculosa. Hydradenitis, or inflammation of the sweat coil, is described along with furunculi. Pompholyx or

dysidrosis and lichen planus, both of which have, in my belief, their seat in or about the sweat apparatus, are described among the general inflammations of the skin, as this view is not yet generally accepted. Another affection, to which the term dysidrosis has also been given, is described here. Hidradenoma* is discussed under lymphangioma tuberosum multiplex.

HYPERIDROSIS.†

Deriv.—ὑπὲρ, super; ἱδρώς, sweat.

Synonyms.—Excessive sweating; Idrosis; Ephidrosis; Sudatoria.

Definition.—A functional disorder of the sweat glands, in which the secretion is excessive.

Hyperidrosis may be general or partial, slight or severe, acute or chronic.

Universal sweating may be symptomatic, as in acute rheumatism, phthisis, hectic fever, ague, rickets, or the so-called "sweating sickness" of the middle ages, etc., but it is only with those forms which are apparently idiopathic that we have now to do.

Symptoms.—The sweat is often quite cold, and when general is not very excessive, except in rare instances, when it may be so great as even to be fatal.‡ The local forms may be paraplegic or hemiplegic in distribution, or symmetrically localised to certain regions, especially the palms, soles, axillæ, and genital regions; and when in these hot covered parts, is often associated with bromidrosis.

Unilateral cases affecting the whole of one side of the body are

* In the *Brit. Med. Jour.*, February 6th, 1892, p. 272, J. W. Barrett of Melbourne describes the cases of a mother and two daughters, who had numerous tumours on the scalp and forehead from a pin's head to a small tomato. From their anatomy, he designates them multiple sudoriparous adenomata, but they are quite different from the hidradenomata above mentioned.

† *Literature.—Des sueurs morbides*, by L. Bouveret (Paris: 1889).

‡ Myrtle of Harrogate, in *Med. Press*, February 25th, 1885, relates the case of a man, æt. seventy-seven, who, after some flying pains and fever, began to sweat profusely, and continued to do so until he died exhausted, in three months from the onset of the sweating. Richardson, in the *Asclepiad*, vol. for 1885, p. 191, records another such case, and one of hemi-erythema, followed by profuse hemi-hyperidrosis.

rare; it is more often confined to one side of the head, in the domain of the fifth nerve, or to one limb, but even these limited cases are not common. The palms and soles are very frequently attacked, either together or separately, and there are all grades, from merely moisture to profuse dripping in severe cases. If on the hands, it disables the patient from social duties or from many occupations, and may lead to *tylosis*; and if on the feet, it interferes with walking, the skin becoming sodden, corrugated, and in parts red and tender. In regions like the genitals, in contact with adjacent surfaces, intertrigo and eczema may arise. The sweating may be continuous or intermittent, aggravated when the weather is hot, or under emotion, or depression of the general health, and in the domain of the fifth, is often excited by mastication. It may be temporary or permanent, and last for weeks or years.

Etiology.—Neither sex, age, nor social condition has any influence on its production. Faulty innervation is probably the main cause, but we can rarely detect the starting influence which produced the effect. In several instances of localised unilateral sweating, there has been suppuration, presumably involving the nerve supply of the part, *e.g.*, suppuration of the parotid followed by sweating of the face of the same side, or bubo followed by inguinal sweating. In other cases, there has probably been an undetected neuritis, which possibly may in some instances be gouty. In slight degrees, *e.g.*, in the palms, it is often congenital, and in rare instances, hereditary, or it may be vicarious, as in local sweating, *e.g.*, of the palms in ichthyosis.

Pathology.—Claude Bernard's experiments showed that paralysis of the sympathetic was followed by hyperidrosis, and Brown-Séquard's, that excitation of sensory nerves would produce sweating. In a case of Traube's, profuse sweating came on a few days before death, and at the post mortem, a tumour was found in the cord, half an inch below the medulla oblongata. Weir Mitchell describes localised sweatings after division of a nerve by gunshot injuries, etc. These facts lead to the inference that injury or disease, which directly or indirectly interferes with the function of the sympathetic of the affected region, is the proximate cause of the excessive secretion. The fluid itself is normal in its constituents. A case of profuse post-mortem sweating some hours after death is recorded by J. A. Cones.*

* *Lancet*, May 25th, 1889.

The prognosis is variable, and there are seldom data to enable an opinion to be formed.

Treatment.—Careful investigation into the general health should be made, and any defect rectified. The mineral acids and nux vomica suit many cases where there is debility; iron, quinine, and cod-liver oil are often indicated. Failing any general indications, certain special remedies may be tried. The tincture of belladonna pushed to the physiological limit is often useful, probably as a vaso-motor stimulant; or hypodermic injections of atropia might be tried, $\frac{1}{150}$th of a grain increased up to $\frac{1}{60}$th; $\frac{1}{6}$th grain of agaricin is much praised by Piering. I have found ergot in full doses, such as ʒss or more of the liquid extract three times a day, answer well for some cases; but the best of all, in my experience, is sulphur. A level teaspoonful of the precipitated sulphur in milk twice a day is the usual dose. Where it purges too much, it may be combined with astringents, as in the following: pulv. cretæ co. ʒvj, pulv. cinnam. co. ʒij, sulph. præcipit. ℥j; a teaspoonful to be taken twice a day. What its *modus operandi* may be I am not prepared to say, but it has succeeded more often than anything else in my hands, and local treatment is not required, as a rule, with it.*

Local treatment is often of great assistance. Faradising the part has sometimes been successful, but belladonna ointment or liniment rubbed in is one of the best remedies. For the feet, Hebra's plan, which he said was always successful, was to keep them closely wrapped up, each toe separately, in an ointment of ung. lithargyri, changed twice a day, and the treatment continued for a fortnight; others recommend oxide of zinc ointment. These methods are too cumbersome, necessitate lying up, and are therefore generally impracticable. Duffin's modification of strapping the feet is better, as it allows the patient to go about; it should be done evenly and firmly, with stout lead or soap plaster. Thin's

* In Penwarden, U.C.H., a tailor, æt. sixty-five, hyperidrosis had existed thirty-five years. It was usually confined to the hands and feet, but at its worst affected the whole body. It was absent as long as he preserved the horizontal posture, but came on directly he got up, and was always increased in the summer months. When at its worst, he lost appetite and spirits, had a pricking sensation, and sometimes minute red papules appeared all over the hands. He had tried almost every variety of treatment, but, of all, sulphur internally did him most good, keeping the disease under for twelve months; but latterly, even that failed.

plan is to dredge boric acid, very finely powdered, into the stockings and boots every day, and to put in the boots, cork socks which should be washed and disinfected in boric acid lotion daily. This is cleanly and convenient, and one of the best methods of local treatment. Tartaric acid (Frédérique) and subnitrate of bismuth may be used in the same way, or rubbed over the body when the hyperidrosis is general.

When it is desired to check sweating in the axillæ or elsewhere for some hours, holding a very hot sponge to the part for a few minutes is effectual. A powder of 3 per cent. of salicylic acid may also be dusted on, and sponging on 1 per cent. of quinine in alcohol is recommended by Fox of New York.

Astringents, such as 1 or 2 per cent. of alum and tannin in alcohol, are also employed, and are useful sometimes.

Disinfectant soaps, such as terebene, carbolic acid, and daily ablutions, are adjuvants. Many other remedies are recommended, but there are none better than sulphur internally, and boric acid or borax locally.

BROMIDROSIS.

Deriv.—βρῶμος, a stench.

Synonym.—Osmidrosis.

Definition.—Offensive sweating due to functional disorder of the sweat glands, or to alteration of the sweat after its excretion.

Symptoms.—It may be symptomatic, as in rheumatic fever, scurvy, syphilis, scrofula, uræmia, etc., or idiopathic. There is generally hyperidrosis, but sometimes the quantity is normal. It may be local or general; the local is the most common, affecting the feet only, but the axillæ, groins, and perinæum may also be involved.

When affecting the feet, the odour is, *sui generis*, most penetrating and nauseous, and once smelled will not be forgotten: perhaps putrid cheese is the best comparison. The sufferer is, therefore, unfitted for society and indoor occupations. The stockings and boots are soaked with the evil-smelling fluid, and the feet sodden like a washerwoman's hands; often there is secondary redness,

especially at the borders, much tenderness, and sometimes blebs are formed, and walking then becomes impossible.

In other parts of the body, the odour is different, and usually not so strong.

In certain nervous states, pleasant odours of the sweat have been noticed, such as that of violets and pine-apple, and one of Hammond's* cases was also unilateral.

Etiology.—Local bromidrosis is generally observed in young people and in the feet; it is most common in domestic servants or others who have much standing. Some cases are due to emotional conditions, while the causes of others are quite obscure.

Pathology.—As Hebra pointed out, the sweat of the feet is not offensive when first secreted, and Thin's investigations point to its becoming so from the presence of micrococci. These under cultivation develop into bacteria, which he calls bacterium fœtidum. Moore, the botanist, thinks this bacterium is identical with that found on surface soil which reduces nitrates, sulphates, and phosphates into nitrites, sulphites, and phosphites. The micrococci may be readily seen if some of the sweat be dried on a cover glass and stained with methyl violet. Similar micrococci can generally be found between the toes even without bromidrosis, getting there probably with dust.

Treatment.—Thin's plan locally, and sulphur internally, as described under hyperidrosis, is the most convenient and effectual treatment. The sulphur alone is generally sufficient. In the German army, rubbing the feet with mutton suet with 2 per cent. of salicylic acid is almost universally adopted, and where there is much walking has the advantage of lubricating the feet. Latterly, a 5 per cent. solution of chromic acid, painted on the feet every three to six weeks, has been successfully employed. In very obstinate cases, 10 per cent. may be used. Salicylate of sodium in 5 to 10 grain doses has cured some cases. For other methods see Hyperidrosis.

* W. A. Hammond, "On Odours in Connection with the Nervous System," *New York Med. Rec.*, vol. xii. (1877), p. 460; and Monin, *Sur les odeurs du corps humain* (Paris: 1885); full abstract in *Amer. Jour. of Cut. and Ven. Dis.*, July 1885, p. 211.

CHROMIDROSIS.*

Deriv.—χρῶμα, colour, and ἱδρώς, sweat.

Synonyms.—Stearrhœa or Seborrhœa nigricans (Wilson and Neligan); Pityriasis nigricans (Read).

Definition.—Coloured excretion of sweat or sebum.

Symptoms.—The first case of this very rare and curious affection was published by Yonge of Plymouth in 1709. In it, coloured sweating appears symmetrically distributed in various parts of the body, but chiefly about the orbital region, affecting the lower lid more than the upper; the other parts commonly involved in the order of frequency, are the cheeks, forehead, side of the nose, while the whole face, the chest, abdomen, backs of the hands, finger tips (once), and the flexures, as the axillæ, groins, and popliteal spaces, are more rarely affected. The colour is usually black or sepia, but may be blue from azure to indigo; red, green, yellow, and violet sweats have been recorded, and in some cases, the colour has changed while under observation, as from blue to black, blue to ochreous, yellow to black.

It appears either rapidly or gradually, forming a powdery or granular deposit on the skin, which is wiped off with some difficulty with water alone, but is easily removed with spirit of chloroform, ether, or glycerine. In three cases † I have seen, it was largely

* *Literature.*—Le Roy de Méricourt, *Mémoire sur la chromidrose* (Baillière et Fils: Paris, 1864). Wynne Foot, *Dublin Jour. of Med. Science*, August 1869 and December 1873; Roy. Acad. Med., Ireland, December 14th, 1888; and *Irish Hosp. Gaz.*, February 16th, 1874; also Fox's case and Report of Committee, *loc. cit.*

† One of the cases, Kate L., is reported by Colcott Fox, in *Clin. Soc. Trans.*, vol. xlvi., 1881. It was referred to a committee—S. Mackenzie, Cavafy, Fox, and myself—for investigation, and was admitted into U.C.H. The committee were convinced of its genuine character, on one occasion having seen a slight but decided renewal of the pigmentation while in a Turkish bath. The pigmentation formed slowly. The report of the committee, detailing the tests employed, is published in vol. xv. of the *Transactions*. Another case reported upon at the same time was clearly proved to be an imposition. I have since seen another case at Shadwell, a woman, æt. forty-seven, of naturally dark complexion; the bowels were habitually confined, going three or four days at least without an action, and latterly she had suffered from articular pains. The discoloratio

composed of fat, and was flaky or granular, and much more resembled seborrhœa than sweating, and for these cases Wilson and Neligan's name, stearrhœa nigricans, is more suitable. In other cases, such as those of Lecat, Billard, Bousquet, and Elliotson, etc., it seems to have been indubitably sweat, for it was actually seen to be excreted under observation.

* * * * *

It would thus seem that there are two forms—the **sweat** and the **sebaceous**; and probably the first is that where it forms rapidly, and the last gradually. In Féréol's * case, neither sweat nor sebum was observable.

In a large number of cases, there is obstinate constipation. The amount of pigmentation varies on different days, or when it forms rapidly, at different times of the day. It is worse sometimes just before a catamenial period, and better just after it. It may go on for an indefinite period, if the disordered health is not rectified, coming out and disappearing somewhat capriciously, and return of the constipation is very likely to induce a return of the disordered coloration. When checked in one place, it has appeared in other parts of the skin and in the excreta; in Teevan and Brodie's † case,

came out gradually, beginning at the sides of the face, then spread to the cheeks and forehead. When seen, the upper half of the forehead, the temporal regions, and the skin between the ear and malar eminence, were of a blackish-brown colour, with slight hyperæmia of the adjacent parts; she said it had been almost black, but she had cleaned some of it off. There was evidently much fat in the secretion, and there was seborrhœa of the scalp. Washing with soap and water had very little effect, but it was removed with ether; when the skin still looked darker and redder than the rest. After a week's treatment with saline purgatives the discoloration was much less, but she still had articular pains, for which alkalies were prescribed, and she did not attend again. The third case was a girl, æt. twenty, originally under Mackay of Brighton. The affection had lasted a year, and was limited to the left cheek and eyebrow. Six months before the patch appeared, she had a superficial burn, which did not leave a distinct scar, but the surface was slightly granular. The deposit was distinctly fatty, evidently seborrhœic and of a sepia tint. She suffered from obstinate constipation, the bowels only acting once a week. The left side flushed more than the right. In connection with this case, may be mentioned those of Conrade, who had a case of blue perspiration of one-half of the scrotum; and of White of Harvard, a case of unilateral yellow chromidrosis in a man, *Amer. Jour. of Cut. and Ven. Dis.*, vol. ii., November 10th, 1884.

* *La France médicale*, August 20th, 1885.

† *Medico-Chirurgical Trans.*, 1845, vol. xxviii.

there was black pigment in the vomit, fæces, and urine. Billard's, Law's, and Neligan's cases are other examples of similar occurrences, and in the case of Maker of Colmar the saliva also was sometimes blue. Blue pus, blue urine, green and red milk, have been observed on various occasions without chromidrosis.

Etiology.—Only six out of forty-six cases were in males, and although the ages have ranged from fifteen to fifty-seven, most (two-thirds) of them have been in young unmarried women. Uterine disorder has been present in many cases, but chronic constipation is the most frequent concomitant. The neurotic temperament is the greatest predisposing cause, and mental distress, hysteria, hypochondriasis, anxiety, grief, fright, have preceded or accompanied the attack in different instances.

Pathology.—The theory put forward is, that the substance secreted in the sweat is the colourless indican, which is oxidised by exposure to the air or by some ferment into indigo; the chief ground for this theory being, that in constipation and chronic catarrh of the intestine, which is so common in these cases, indican supposed to be derived from the indol of the fæces is more abundant in the urine than usual. The pigment in the case of Kate L. was in amorphous granules in the epithelium, and did not give the indigo reactions. Different opinions have been expressed as to the nature of the pigment, but all agree that it differs from any of the other mineral or vegetable powders of like colour. Primarily, the disease is doubtless a neurosis, and the clinical evidence points to the possibility of the pigment being excreted by either the sweat* or the sebaceous glands.

Diagnosis.—The possibility of imposition must always be borne in mind. The circumstances under which it occurs will often give a clue. There is nothing but imposture which at all resembles this affection, and this circumstance makes many people sceptical as to its genuine character; but the cases of Teevan, Duval, Foot, Fox, etc., in all of which competent witnesses saw it reappear, prove its reality.

Prognosis.—It ultimately always gets well, though it may last off and on for ten years. Kate L.'s case lasted five years at

* If Meissner's and Unna's view is correct, that the coil of the sweat gland secretes fat and the end of the duct sweat, disorder of the coil glands would account for the whole, and it would not be necessary to assume the involvement of the sebaceous glands.

least, the other case two months. Its duration depends on the removability of the cause.

Treatment.—The successful treatment of the constipation, uterine derangement, or other defective health, is the only efficacious treatment; local remedies appear to have no influence.

COLOURED SWEATING, with quite a different pathology, has been also observed under the following circumstances :—

1. **Green Sweat**, due to copper,* which has been taken into the system by the food, drink, or air, in particles or fumes, is seen mainly in copper workers. The colour may be bluish instead of green. In Kollman's case of blue chromidrosis, where the patient had taken much iron, Scherer found protosulphate of iron in the sweat, and to this the colour was ascribed.

2. **Red Sweat** is often noted in the axillæ and genital region, due to micro-organisms,† which have developed in the hairs in these hot, moist parts, and have simply mingled with the sweat after its excretion; according to Babes,‡ these organisms resemble not only the red bacterium prodigiosum, but colourless growths of the hair and sweat. Red sweat is always associated with lepothrix, to which the reader is referred. Bacteria have also been observed in yellow (Eberth) and blue sweat.

Quite another kind, again, of red sweating is—

3. **Hæmatidrosis, or Bloody Sweat**, sometimes called ephidrosis cruenta.§ It may be defined as a purpura of the sweat glands, blood having been extravasated into the coils and ducts, and appearing mixed with sweat on the surface of the unbroken skin, at the orifices of the ducts.

The affection is a very rare one, and in some of the cases has been due to vicarious menstruation, or it may occur in young women of highly nervous temperament during violent emotion, and occasionally in the new-born.‖ It comes from limited areas, very diverse in different cases, *e.g.*, from face, ears, umbilicus,

* A number of cases are recorded by Dr. Clapton, *Med. Times and Gaz.*, vol. i. (1868), p. 658.

† Balzer and Barthélemy, *Ann. de Derm. et de Syph.*, June 1884.

‡ *Centralblatt für med., Wissensch.*, 1882, p. 146.

§ McCall Anderson, *Lect. on Clin. Med.* (London: 1877).

‖ These and other hæmorrhages which occur in the new-born, *e.g.*, into the skin and alimentary canal, are probably due to the great changes which occur in the circulation after birth.

hands, feet, etc. Du Gard, quoted by Wilson, records a case, fatal on the sixth day, in a child of three months, where it came in large quantities from various parts of the body. The notorious case of Louise Lateau * with "bleeding stigmata" was of this character in a highly hysterical subject, and there are like cases on record.

The treatment would depend entirely on the cause; the hæmorrhage itself would rarely require special treatment, but if it did, it would be the same as for purpura hæmorrhagica.

PHOSPHORESCENT SWEAT

is a curious rarity. It has been observed in some cases of miliaria, and after eating phosphorescent fish, while Koster † records a case where the body linen became luminous after any violent exertion.‡ Phosphorescent breath in phthisis, in the pus of cancer, and in the urine and semen, when phosphorus is being taken as a medicine, are better known. There is strong reason for believing that the phosphorescence is due to bacilli, Beyerinck § having found no less than six species of photobacteria, chiefly derived from fish, which will excite fermentation in sugar solutions in the presence of oxygen and peptone.

URIDROSIS.

Synonym.—Sudor urinosus.

This is due to excretion of urinary constituents, especially urea, by the skin. Urea is a constant constituent of the sweat in small quantities, but in disease may increase so much that white crystals, like hoar frost, have been deposited on the body. This was possibly the nature of the deposit on the skin of four young natives in Hyderabad, recorded by Frazer-Nash, though no examination of the deposit was made. As he mentions having seen several other slight cases, it is probably not uncommon in India, where the food is principally milk, fruit, coarse bread, and water.

* Warlomont, "Louise Lateau," *Rapport méd.* (Paris and Bruxelles: 1875). "La stigmatisée de Bahia," *Le Mouvement Méd.*, No. I., 1877, quoted by Duhring.

† Quoted in Carpenter's *Physiology*, seventh edition, 1869, p. 500.

‡ See Sir Herbert Marsh on the evolution of light from the living human subject (Dublin: 1842).

§ Supplement *Brit. Med. Jour.*, January 1st, 1891.

It has also been observed in cholera and atrophy of the kidneys, in uræmia, and in some conditions just before death, even where there has been no affection of the kidneys and bladder. A urinous odour of the sweat in uræmia is not uncommon.

ANIDROSIS.

Deriv.—*a*, privative, and *ἱδρώς*.

Definition.—A disorder of the sweat glands, in which their function is more or less in abeyance.

This condition exists in all grades, from slight diminution to complete absence, and may be local or universal. It may be symptomatic, as in diabetes, albuminuria, fevers, etc.; due to a congenital defect, as in xeroderma, though the absence of sebum is of quite as much importance in that disease, or in people who always perspire with difficulty even in a Turkish bath; or, again, it may be temporary or permanent from defective innervation, or torpor from general malnutrition, etc.; or, finally, it may be from mere clogging of the cutaneous orifices, from not washing sufficiently often. In many skin diseases, it is absent in the affected area, as in anæsthetic leprosy, scleroderma, general or circumscribed (morphœa), in eczema or psoriasis, and in diseases in which the horny layer is increased, but it is very rare as an idiopathic disease. Whether congenital or acquired, when general it produces headache, painful flushing, etc., if the patient is exposed to great heat.

Treatment.—Nothing can be done for cases of congenital origin, but when acquired and apparently idiopathic, efforts at restoration should be made by a general tonic system, and shampooing after warm baths, especially alkaline and vapour, but not Turkish baths; cold sponging may be used in the morning, as part of the invigorating treatment.

MILIARIA.

Deriv.—*Milium*, millet.

Synonyms.—Miliaria crystallina; Sudamina; Miliaria rubra; Miliaria alba; Lichen tropicus; Prickly heat.

Definition.—An affection in which there is an obstruction to the sweat secretion, with or without inflammation as a cause or consequence.

Symptoms.—The non-inflammatory form is called **sudamina** or **miliaria crystallina.** It is simply the result of the sweat being unable to escape, owing probably to an accumulation of epithelium at the orifice of the duct when the sweat function is in abeyance, as in fevers; then, when secretion is restored, especially by a "critical sweating," the fluid, being unable to escape by the natural channel, is effused under the horny layer, and forms a vesicle. The vesicles are very minute, closely crowded together, but rarely confluent, with clear or pearly contents with an acid or neutral reaction; the fluid is absorbed in a few days, leaving slight desquamation. The vesicles occur most abundantly on the trunk, especially the neck, chest, and abdomen, but they may come anywhere. They form rapidly, do not enlarge after the first few hours, and get well in a few days, unless fresh crops appear, which may keep up the affection for weeks.

Miliaria Vesiculosa et Rubra. This is an inflammation in the sweat-pore area, and the lesions may be simply acuminate, pin's-point-sized, bright red papules, or crowned with vesicles or pustules. They arise in great numbers, chiefly upon the trunk, especially on the back, but may also be distributed on the face and limbs. They are closely crowded, but discrete; and the fluid being inflammatory, is of alkaline reaction. There may be a general redness of the skin in the affected area. When there are only bright red papules, it is *miliaria rubra*; when there are vesicles, the fluid soon becomes opaque, and it is *miliaria alba.* In a few days, the contents dry up and leave slight desquamation; or if ruptured by scratching—for they do not rupture spontaneously—a small scab or dried exudation is left, which falls off in two or three days, and the process is at an end as far as those lesions are concerned, though by successive crops the eruption may continue so long as the hot weather lasts. Pricking or itching is often present, but not so much as in miliaria papulosa.

The "**red gum**" or **strophulus** of infants is really a sweat rash or miliara rubra, due to the infant's being too much swathed up; it is often unilateral, on the side of the face and arm which is held to the mother in nursing, when she suckles mainly with one breast.

Miliaria Papulosa, another variety of M. rubra, is the well-known lichen tropicus or prickly heat, the presence of papules being its only title to the name of lichen.

It differs from M. vesiculosa in the inflammation being secondary to the retention of the sweat in that disease, while in M. papulosa, the inflammation produces the obstruction to the sweat secretion.

It consists of minute, bright red, acuminate, discrete papules, closely crowded together, with vesicles or vesico-pustules sparsely interspersed. It comes out suddenly, preceded and accompanied by profuse sweating in other parts, and is attended with intolerable pricking and tingling. It affects large areas, chiefly in covered parts, such as the limbs, breast, flanks, and upper part of the forehead; the last position is the most common in my experience, but in the tropics, and in people who have had it before, it may come anywhere.

Miliary fever* (*Synonym.*—Sweating sickness) is an epidemic disease in which profuse sweating and miliaria are prominent symptoms. The first record of it was a severe epidemic in London in 1486; of late years, it has been almost confined to the north of France.

Etiology.—Sudamina are most frequently seen at the termination of a fever, such as typhus, typhoid, acute rheumatism, puerperal septicæmia, or in some prostrating constitutional condition, such as tuberculosis. It occurs at all ages when the vital powers are depressed.

M. vesiculosa occurs under much the same conditions, but is more readily re-excited by injudicious eating, hot drinks, or acrid sweat and too warm clothing, as in delicate infants.

M. papulosa is most common and most highly developed in hot climates, but is not unusual in England in the summer, though it is rarely intense here, unless the patient has had previous attacks abroad, for one attack strongly disposes to another, and very slight causes will reproduce it in the predisposed; too warm

* For a further account of it, see Ziemssen's *Encyclopædia*, 1875, vol. ii., p. 485, and *Lancet*, October 1st, 1887, p. 671, giving the symptoms of an epidemic in the central departments of France in the spring of 1887; also *Plagues, Ancient and Modern; or, the Black Death and the Sweating Sickness*, by Joseph Frank Payne, M.D.

or close-fitting clothing, or the irritation of flannel, are some of many exciting causes, as are also rapid alternations of temperature, whether from cold to hot, or from hot to cold; hence, therefore, too thin clothing may also conduce to it. It is most frequently seen in obese people, or in those who perspire profusely.

Anatomy.—The pathology has been sufficiently explained; the anatomy of sudamina has been investigated by Haight, Robinson of New York,* and Török. The vesicle is formed between the deeper lamellæ of the corneous layer; the fluid in it is sweat, and a sweat duct is always to be found beneath the vesicle; the duct being obstructed, the sweat ruptures it, and is effused as described.

The fluid from a severe case of sudamina in typhoid fever was examined by Robinson, who found eighteen parts per thousand solid, fourteen organic and four inorganic matter, chiefly chlorides. No uric acid, sulphates, phosphates, albumen, or sugar.

In M. vesiculosa and papulosa, slight inflammatory exudation doubtless occurs about the ducts, and in M. vesiculosa, the inflammatory fluid is effused more freely than in M. papulosa.

Robinson and Török have both examined M. rubra. Robinson says that the inflammation is about the sweat pore, Török that it has nothing to do with it. As they are both good observers, we must assume that it is not always round the sweat pore. Both agree that the lesion is due to inflammation starting in the papillæ, and Robinson often observed a catarrhal condition of the sweat coil. On the whole, the evidence goes to show that the process is a sweat eczema.

Diagnosis.—The minute pearly vesicles of sudamina can scarcely be mistaken for anything else.

M. vesiculosa is most like *vesicular eczema*, but in the latter, there is a tendency to form patches, and the vesicles rupture spontaneously, while in miliaria, the vesicles are scattered irregularly, do not rupture of themselves, and while each vesicle is on a red base, the surface is not red, as in eczema. Miliaria is more transitory, coming in sudden repeated crops; eczema is a more continuous process.

M. papulosa is most like *papular eczema*; its association with sweating, the sudden onset, and perhaps equally sudden decline, its occurrence only in hot weather, the peculiar pricking sensation, and the minute size of the papules, scarcely allow of a mistake.

In children, these sweat rashes often suggest an exanthem; their localisation to hot situations, the accompanying sweating, and

* "Miliaria and Sudamina," *Amer. Jour. Cut. and Ven. Dis.*, vol. ii., p. 362.

the absence of the constitutional symptoms of measles, scarlatina, and rötheln, etc., will generally guide aright; but when sudamina occur with scarlatina such criteria fail, and the knowledge of the possibility of such a conjunction, is all there is to afford a clue.

Prognosis.—In temperate climates, it generally yields readily to appropriate treatment. In hot climates, it may pass on into an eczema, or intertrigo in fat persons. Relapses are common, sometimes every summer.

Treatment.—Sudamina require no treatment. In the inflammatory forms, saline diuretics, such as the acetate and nitrate of potash, are the best remedies. In prickly heat, much the same treatment is required; at the same time, search must be made for exciting causes, and rest, light clothing, and simple diet must be enjoined; these precautions, with saline aperients, and lemon or lime juice drinks, soon give relief. To avoid future attacks, care should be taken to prevent exposure to rapid alternations of temperature, especially chills, and woollen materials are therefore preferable to cotton for underclothing. Locally, calamine lotion, a weak lactate or acetate of lead, or a very weak liquor carbonis detergens lotion (Lotions, F. 1, 3, 38, 39, 41), may be employed. Alkaline and bran baths at a temperature of 90° to 95° Fahr. often give relief. Zinc and starch dusting powders or finely powdered boric acid and starch are also useful. One of these applications should be applied whenever the irritation is great, so as to obviate scratching, which always aggravates the eruption.

Dysidrosis of the Face. G. T. Jackson * and Rosenthal † have both described cases under this ambiguous title, but they do not seem to have any relation to the dysidrosis or pompholyx previously described. Both were middle-aged women. In one, the disease had lasted five, in the other nine years; both were worse in the summer, though the disease was never quite absent. In Jackson's case, the lesions occupied the cheeks, nose, and lower part of the forehead; they were discrete, but crowded, and even touching, along the naso-labial fold, and were compared by Jackson to sago grains (? unboiled), and by Rosenthal to milium. They

* *Amer. Jour. Cut. and Ven. Dis.*, vol. iv., January 1886, with coloured plate.

† *Deutsch. med. Wochensch.*, No. 20, 1887. I have only seen the abstract.

were deeply imbedded, and looked solid, but a clear acid fluid escaped on puncture. They did not rupture spontaneously, but the contents were slowly absorbed. There was itching occasionally but no sign of inflammation. Jackson considers the affection the same as Robinson* has described as sudamina of the face in washer-women and others exposed to similar influences of steam and exercise. Hallopeau † has also had a case limited to the nose. Rosenthal found a 2 per cent. alcoholic solution of naphthol beneficial.

I have met with three cases, which in some respects resemble the above. One was a young lady, æt. thirteen, who had had the disease four or five years. It was confined to the eyebrows and a large patch on each side of the face, and these areas were crowded with minute pin's-point vesicles, which collapsed on pricking. In the summer, and when she was hot, there was redness of the affected area. Another was a lady, æt. twenty-five. Here there were vesicles or pustules from a pin's point to a pin's head in size. The eruption had been present two years, and began as blotchy redness. The pustular element was a late manifestation. In this case, dyspepsia was evidently the chief factor, and the lesions were more prominent after meals. In a third, a lady, æt. nineteen, there were minute grouped vesicles on the cheeks, which left superficial atrophic pits and streaks.

There is another eruption on the face of inflammatory origin, the elements of which are, I believe, seated in the sweat-pore area, though I have no anatomical proof to offer. It is very rare, and as far as I am aware, undescribed, and very rebellious to treatment. One case was a lady, æt. twenty-four, in whom the eruption came out after taking bromide of potassium, chloral, and other soporifics for sleeplessness, after a great grief. The rash consisted of pin's-head-sized red papules, slightly convex, a few of which had a minute pustular apex. The papules were very densely crowded all over the cheeks and slightly on the nose, semi-confluent over the greater part. I regarded it as due to irritation of the stomach from the drugs she had taken, but treatment founded on that view was not successful, beyond making the papules less prominent, and after four months of various treatment with but little benefit, I gave her ichthyol gr. 5 three times a day after

* "Miliaria and Sudamina," *loc. cit.*, p. 365.

† *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 728.

meals, and she immediately improved, but it was a year before she was quite well.

Another case was a servant, æt. twenty-five. The eruption consisted of pin's point to pin's head, convex, red papules; a few had slight tendency to vesiculation at the apex, and some had minute dilated vessels over them. It was all over the face, except the orbital region and chin. It was not so abundant on the forehead and nose, but was very thick on the cheeks. She had marked dyspepsia, and improved under treatment for that, but did not attend the hospital long, as she was in service.

B. DISEASES OF THE SEBACEOUS GLANDS.

SEBORRHŒA.

Deriv.—Sebum, or *sevum*, suet, and ῥέω, to flow.

Synonyms.—Sebaceous flux; Stearrhœa; Steatorrhœa; Seborrhagia; Fluxus sebaceus; Acne sebacea; Pityriasis; Ichthyosis sebacea; Tinea amiantacea; Tinea asbestina; Eczema seborrhoicum (Unna); *Fr.*, Acné sébacée; *Ger.*, Schmeerfluss; Gneis.

Definition.—A disorder of the fat glands, producing increase and alteration of the secretion, which forms an oily, waxy, or scaly accumulation on the surface.

Symptoms.—Seborrhœa may be general or local in its distribution, and in one or other of its forms is a common condition.

Since there is so much that is debatable in the nature and origin of the morbid forms included under this title, the clinical features will be set forth,—first, of those varieties in which there are no external signs of inflammation, and, secondly, of those in which the inflammatory phenomena are more or less manifest.

In the first series is included an oily, a waxy, and a scaly form.

Seborrhœa Oleosa [*Synonyms.*—Fluxus sebaceus; *Fr.*, Acné sébacée huileuse (Besnier); Hyperidrose huileuse (Brocq); Acné sébacée fluente (older writers)]. In this affection, which is a common one at puberty and onwards, and varies greatly in degree, the skin feels and looks greasy and shining, and a thin oily secretion is spread over the surface. Its most common position

is on the face, especially the forehead, cheeks, and nose, the complexion is generally thick and muddy, and, owing to dust, etc., adhering so readily, the skin always looks dirty. On the nose, it is often associated with venous congestion, rendering it a deep red, but cool to the touch, while the openings of the follicles are unusually prominent.

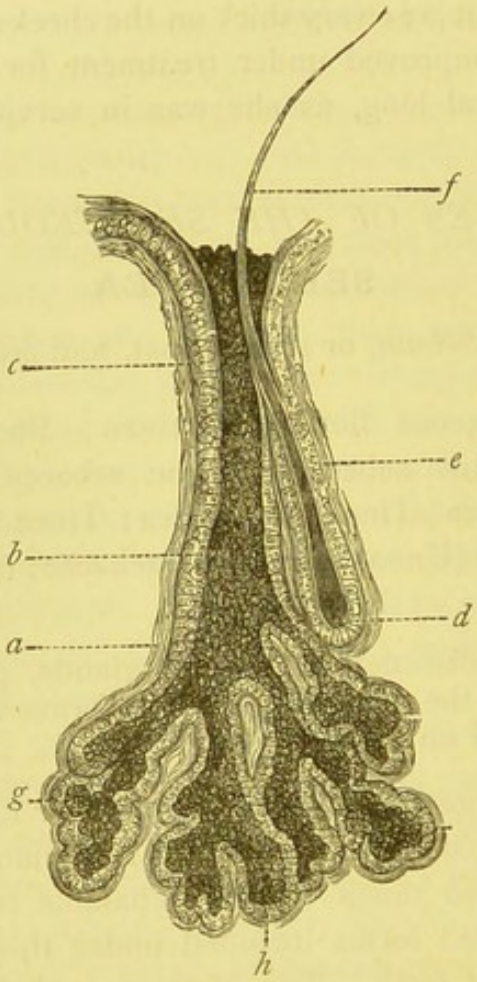

Fig. 53.—A Normal Sebaceous Gland, in connection with a lanugo hair (Neumann).

a, connective-tissue capsule; *b*, fatty secretion; *c*, *h*, fat-secreting cells; *d*, root of a lanugo hair; *e*, hair sac; *f*, hair shaft; *g*, acini of sebaceous gland. A sebaceous gland in connection with an ordinary hair may be seen at the beginning of the section on diseases of the hair.

On the scalp, which is almost always also affected, it does not attract much attention, except in bald persons, to whose heads it imparts an extra polish.

According to Unna, the secretion is derived from the coil of the sweat glands, and not from the sebaceous glands, and this is the only affection he considers entitled to the name of seborrhœa.

Seborrhœa Sicca is generally made to include the waxy and the scaly forms, as they may be associated or shade off into each other. They are both very common and important, as they are the chief causes of premature baldness.

The waxy form (**S. cerea**) varies much, according to its degree and position, and the age at which it occurs. In the new-born, it is the vernix caseosa, and though varying in quantity, is physiological rather than pathological.

In the first year of life, sebum is normally abundant, and, mainly from insufficient washing, often accumulates on the scalp, chiefly at the vertex, where it forms a dirty-yellow mass, sometimes of considerable thickness and cheesy consistence; when raised up, the skin beneath is pale and healthy, unless it is irritated by decomposition of the fat, when it may set up an eczema—a not infrequent event; otherwise it can scarcely be said to transgress the physiological limit.

The same may be said of the fatty secretion, which may accumulate on the glans penis under a long prepuce, and in women on the clitoris or labia where proper ablutions are not practised. Here also its decomposition is liable to set up inflammation, and produce balanitis or vulvitis.

At puberty and onwards, it is seen most commonly at its highest development upon the scalp, where it forms dirty-looking yellowish or greenish-brown, or even black plates or crusts of fat and epithelium. Its most common appearance is that of soft yellow wax. When in small quantity or in the early stage, it can be seen that these fatty scales are seated at the hair follicles of the vertex, temples, and adjacent parts. The disease is then more serious than it appears, as it leads to atrophy of the hair, and if not perseveringly treated, to premature and permanent baldness, of which it is the most common cause. This it may do when it is insufficient of itself to attract the patient's attention, for in cleanly people it is easily overlooked, and the loss of hair is the condition for which advice is sought. In more severe cases, it may extend all over the scalp, and form a fringe from one-half to an inch wide all round, with well-defined margin and fatty scales: more or less obvious inflammation is then generally present. It may also occur on the hairy parts of the face, where it also leads to loss of hair. In girls, it may be seen on the eyebrows, with very slight redness and scaliness, but with gradual

shedding of the hair. It is generally associated with some defect in the general health, and is very difficult to cure completely.

The scaly form (**S. furfuracea seu pityriasiformis**) used to be, and is still, regarded by some authors as a separate affection, and has been also called pityriasis simplex, acné sébacée sèche, eczema seborrhoicum squamosum (Unna), dandriff, etc. Many persons are troubled by their heads being constantly covered with fine, white, shining scales, which brush or shake out on to their clothes, to their great annoyance. Examination of the scalp shows that it is more or less thickly covered with these scales in the same positions as the waxy form, and the lower layers are slightly adherent to the scalp. This condition is familiarly known as **scurf** or **dandriff**, and leads to atrophy of the hair, which becomes dry, brittle, lustreless, and sometimes grey, and falls out or is easily combed out every day (**alopecia pityrodes** of Pincus). The scalp beneath the scales is generally quite white, but there may be considerable hyperæmia, burning, or itching. It may, however, last for years without any external sign of inflammation. A similar condition occurs on the whiskers and beard, but less frequently.

On the face, generally from the irritation of soap, small scaly patches with or without slight hyperæmia are frequent. In children, when they are strumous, it may be pretty general on the trunk and limbs in small shining scales, and it is very often present along with lichen scrofulosus.

In the aged, with degenerated skins, dirty-looking branny or powdery scales may cover the whole body to a greater or less degree, and a similar condition occurs sometimes in diabetes and other chronic wasting diseases (**S. tabescentium**).

Under the name of **Alopecia Pityrodes Universalis**, P. Michelson describes * a rapid and general denudation of hair occurring in debilitated states, which differs from alopecia areata universalis neurotica in being preceded by abundant desquamation of fatty scales; in the apparently bald places, being covered with fine colourless lanugo hairs, or with hair rudiments; and instead of the skin being thin and lax, as in alopecia areata, being rather firmer and stiffer than normal. Moreover, the prognosis is good. Besides general tonic measures, Michelson recommends local

* *Monatsh. f. prak. Derm.*, 1882, No. 4, and Ziemssen, p. 418.

ablution with spirituous soaps or weak solutions of corrosive sublimate or chloral hydrate. It appears to me to correspond with S. sicca except in the rapidity and extent of the denudation of the hair.

S. congestiva is the name given by Hebra to what is now known to be the early stage of lupus erythematosus.

S. corporis of Duhring will be presently described.

Etiology.—Excluding the infantile form, which hardly amounts to disease, it is particularly common at puberty, when all the glands become especially active. It is more common in women than in men after fifty, but, taking all ages, there is no material difference; fair people are more prone to S. sicca, and dark to S. oleosa. It appears to run in families sometimes; or, at all events, it is not uncommon to find that all the men of a family lose their hair prematurely, and seborrhœa is generally present in such cases.

It is a much more obstinate disease in the old than in the young, and also more important, on account of the baldness it entails. In the majority of cases, there is some defect of health, generally of a debilitating character. In girls, chlorosis is one such cause, and even young men suffering from seborrhœa are usually pallid and out of health, and they are often the subjects of struma, comedones, and acne vulgaris. After the climacteric period, women are especially liable to it, frequently without any uterine disorder being present. Syphilis also is a strongly predisposing influence in both sexes, and other chronic exhausting diseases, such as phthisis and chronic cancer, are responsible for a certain number. A more transitory condition is often seen after severe illnesses, such as the exanthemata and other fevers, with considerable loss of hair. Small-pox especially is apt to give rise to scutiform, closely adherent crusts on the face, either broken up, or in a continuous patch. Finally, in a fair number of cases no cause whatever can be assigned for it.

Pathology.—Hitherto seborrhœa has been regarded as primarily an exaltation of the natural function, most conspicuous where the secretion is normally very abundant, viz., on the scalp and face, the difference in consistence depending mainly upon the constitution of the individual. Along with the sebaceous secretion, there is more or less free exfoliation of the cells of the hair follicles and epidermis, which are mixed with the secretion, and is one factor in the production of the scaly form, the other being imperfect

fatty metamorphosis of the lining cells of the sebaceous glands.* When the disease is of long standing, atrophy of both the gland and hair follicle and the neighbouring tissue is apt to ensue. According to Unna, seborrhœa is always inflammatory, and he therefore calls it seborrhœal eczema; but though often accompanied by inflammation of the skin, all signs of inflammation may be totally absent, and, after removing the fatty crusts, the skin often looks quite normal; he also thinks that the seat of the mischief is not in the sebaceous glands, but in the sweat coils, which are, he considers, the lubricators of the body. It is, however, clinically convenient to retain the title of seborrhœa for these affections of fatty deposition on the skin without external signs of inflammation, and to describe the definitely inflammatory forms separately.

There is little doubt that micro-organisms play an important part as an exciting cause, but the seborrhœic coccus is not yet identified.

Diagnosis.—In the absence of secondary inflammation, the diagnosis is not difficult.

S. sicca is most like *eczema*, but the crusts are fatty, and do not consist of inflammatory exudation, and when raised, the skin beneath is white and dry, while in eczema it is red and moist. In scaly seborrhœa, hyperæmia is either absent or slight, the itching is comparatively little and often absent, the pityriasis is diffused over the scalp, and is always dry throughout its whole course; in eczema, the redness is always well marked, there is generally discharge, marked infiltration, and itching, and it is often only partial in its distribution.

This form is also like *psoriasis*, but psoriasis is always in well-defined patches, the scales are adherent, very abundant, and larger than those of seborrhœa, and, when removed, the surface below is very red and the disease is seldom limited to the scalp.

Seborrhœa of the face, with hyperæmia, is very like a *slight eczema*; here, again, there is never any discharge, the scales are evidently chiefly fatty, and there are often other signs of sebaceous disorder.

The diagnosis between seborrhœa of the face and *lupus erythematosus* is given under the latter disease.

* Pincus found that three-fifths of the scales, by weight, consisted of abnormally firm secretion from the sebaceous glands.

Prognosis.—In infants and young people the prognosis is good; but when dependent upon an irremovable defect of health in older people, or when of long standing, it is always obstinate, and may be incurable. Many apparently causeless cases are also very troublesome, and may defy treatment. On the scalp, even in the comparatively young, if of long standing, it is often fatal to the hair of the affected region, restoration rarely occurring, and then being only partial; but in recent cases, there is fair hope of success.

Treatment.—The indications for treatment are to be sought in the etiology; the defects in health should be carefully looked for, corrected, and every effort should be made to place the patient under the best conditions as regards himself and surroundings that circumstances permit. Iron and cod-liver oil are the two remedies of most frequent utility, but the alimentary canal often requires preliminary attention. Arsenic is sometimes useful in the scaly cases. Duhring speaks in favour of sulphur, especially in the form of calcium sulphide, one-fifth of a grain three times a day; but treatment on general principles is more reliable than specifics, which only find a place when the special indications are absent.

Local treatment is generally of the greatest importance. In infants, this is all that is required: the fat crusts should be softened with strips of flannel dipped in olive oil and laid on the scalp, or the oil may be well rubbed in, and the head washed thoroughly with soap and water; a little oleate or oxide of zinc ointment may be afterwards applied for a few days.

In older people, or where the crusts are very adherent, the soap and spirit liniment will facilitate removal of the crusts and scales, and sometimes the addition of oil of cade, as in the treatment of psoriasis, is required for the cure. A good formula for obstinate cases in the scalp I have found to be ung. hyd. nit. ʒj to ʒiv, ol. cadini ʒj, ol. olivæ ʒij, lanolin ʒiv, misce; this is to be well rubbed in every night, and, if the daily avocations require it, washed off with borax ʒij to water Oj, and then a little almond oil may be rubbed in, or the ung. hyd. oxid. flav. may be used instead of the nitrate, with or without the oil of cade. Where there is hyperæmia, a soothing remedy may be necessary at first, thus on the face liq. plumbi subacet. ɱxxx, vasel. alb. ʒj is a good remedy; sulphur applications are very useful for the face, or where there is only slight hyperæmia, precipitated sulphur may be

scented with attar of rose and used with a powder puff; for the body ten to thirty grains of sulphur to an ounce of lanolin is all that is required, sometimes ʒj to the ℥j may be employed. For the scalp, a similar ointment with resorcin ʒss to ℥j is efficacious. Whatever the treatment adopted, it should be energetically and perseveringly pursued.

Seborrhœic Dermatitis [*Synonym.*—Seborrhœic eczema (Unna)] comprises various forms of the second series in which the clinical signs of inflammation are present, and resemble more or less closely various forms of ordinary dermatitis.

Duhring was the first to point out that a certain form of inflammation of the skin, which had long been known under the name of lichen circinatus and other synonyms, was intimately associated with seborrhœa capitis, and was, he considered, the same disease modified by position, and he called it therefore seborrhœa corporis. Unna, from a careful study of S. capitis by the microscope and of the clinical relations of the disease, came to the conclusion that not only was S. capitis an inflammation of the skin, seated chiefly in the coil glands rather than the sebaceous glands, but that the various forms of dermatitis which are met with in regions where the coil glands are abundant, such as the axillæ, groins, interscapular regions, and even the palms and soles, are not only of the same nature as S. capitis, but are in most, if not in all, instances due to the direct transference of the same pathogenic organism from the head to the region affected, and that in its new abode the irritative presence of the parasite excites dermatitis of various forms, which he would embrace in one large group, viz., seborrhœic eczema.

There can be no doubt that much credit is due to Unna for an important generalisation; but the majority of dermatologists, except his most faithful disciples, consider that he is giving to his seborrhœic eczema too extended a meaning, which dermatology will be a loser rather than a gainer by adopting unreservedly.

Without disputing that there may be a microscopical amount of inflammation in all S. capitis, every one will admit that only in a small number can it be recognised clinically, and I have therefore adhered to the old well-known term.

Under certain circumstances, active inflammation may supervene, and on the body more or less inflammation is the rule, when

the presumptive parasite is successfully planted out. It is proposed to discuss in the present section the varieties of dermatitis thus excited, all of which, in my opinion, it is not wise to include under the one term seborrhœic eczema. As a matter of fact, the dermatitis may imitate an eczema, a psoriasis, or a lichen, and a clearer conception may be gained of a multiform process by adopting terms that point out the clinical resemblances.

Seborrhœa Eczemaformis. Seborrhœa may go on for years upon the head without showing any external sign of inflammation, and without even attracting the patient's notice, except by the gradual thinning of the hair which it induces; or if in the branny form, by the scaly dust that is shed upon the clothing. Then, under some depressing influence, either mental, such as worry or anxiety, or bodily illness, active inflammation supervenes, the scalp becomes hot and red with abundant flaky and fatty scales, and the affection is perhaps no longer confined to the hairy scalp, but extends beyond for a short distance, with bright redness of the skin, more or less scaliness, and a well-defined margin. Discharge is often absent, but may be easily excited by scratching or the slightest irritation, whether from injudicious applications or other cause; but, from the large admixture of fat, the crusts are softer and less adherent than in ordinary eczema of the head. The lower part of the face is seldom involved in such cases; but if there are any patches, they are always well defined, and do not discharge. A milder form of inflammation is, however, not infrequent as an independent affection on the nose, cheeks, or forehead, the affected area being only pale red, with defined margin and dry scaly surface.

The *treatment* for this condition is that for other active inflammations of the skin, plus bactericides, of which iodoform is one of the best—*e.g.*, iodoform gr. 10, ung. zinci oleat. ℥j, or boric acid ointment ℥j, with gr. 4 of europhen, either ointment to be applied constantly. Where the inflammation is not so active, resorcin gr. 10, and liq. plumbi subacet. ♏xx, adip. benz. ℥j, is a good formula; and in slight degrees of inflammation precipitated sulph. gr. 10 to ung. simplicis ℥j, or weak ammoniated mercury ointment, with or without the yellow oxide, are excellent applications. These stronger ointments should be gently rubbed into the scalp two or three times a day.

Internally, any derangements of the alimentary canal must be rectified, and then such tonics as may be suitable should be given, with a supporting diet, but with very little alcohol.

Chronic patchy forms are most benefited by mercurial or sulphur applications; but resorcin, salicylic acid, or naphthol are good alternative drugs.

On the body papular and scaly forms of inflammation are most frequently met with. *Eczema palmare*, which Unna considers seborrhœic, is described with ordinary eczema.

Seborrhœa Psoriasiformis. This is one of the least common forms. It is the form of disease of which cases were described by Brooke * and by Wickham.† It consists of well-defined bright red patches, with scanty, scaly, and fatty crusts, contrasting with the bright silvery epithelial crusts which almost always cover a typical psoriasis patch which has not been interfered with, but it is very like a psoriasis in which the scales have been partially removed by treatment or free sweating. The individual patches are not large, roundish, and may clear in the centre; but they may coalesce with others, and then cover a considerable area. The eruption is chiefly met with in the axillæ and on the trunk, but may appear slightly on the face and upper part of the limbs, but does not affect the usual psoriasis positions on their lower segments.

A few patches may also be seen on the scalp, and then they are more crusted; but more frequently there is only ordinary S. capitis, without signs of inflammation.

The *diagnosis* might be made by the distribution, the scales being more fatty and less abundant, by the surface being a deeper red than most cases of psoriasis, and by the presence of S. capitis.

The *treatment* should be to remove the scales with soft soap, and then rub in a mild parasiticide. Thymol, resorcin, or sulph. præcip. gr. 10 to gr. 20 to ℥j of lard, vaseline, or lanolin.

The S. capitis should also be treated, and any defect in the general health attended to.

Unna also includes under *seborrhœic eczema* the dry, scaly, slightly reddened patches, with well-defined borders, often seen on the back and sides of the neck, sometimes extending into the

* Brooke, "The Relation of the Seborrhœic Processes to some other Affection of the Skin," *Brit. Jour. Derm.*, vol. i. (1889), p. 247, with coloured plate.

† Wickham, Letter from Paris, *ibid.*, vol. iii. (1891), p. 256.

scalp. They are generally roundish solid patches, but sometimes have a gyrate outline.

Seborrhœa Papulosa seu Lichenoides. *Synonyms.*—Lichen circinatus; L. circumscriptus (Willan and Bateman); L. annulatus serpiginosus (Wilson); Seborrhœa corporis (Duhring); L. gyratus (Biett and Cazenave).

Definition.—A serpiginous, papular, ringed eruption, limited to the trunk and associated with seborrhœa.

Symptoms.—Slight degrees of this disease, which was first described by Willan and Bateman, are fairly common, though it is often only discovered accidentally, as it gives rise to no inconvenience beyond slight itching. It is for the most part limited to the middle and front of the chest and the inter-scapular region; or in more extensive cases, occupies a triangular area with the base at the shoulders and the apex at the lumbar region. It may occasionally spread over the greater part of the trunk; but the limbs, except where they join the trunk, and the face are never affected. It begins as a group of rounded, small pin's-head-sized, bright red papules, occasionally with a scale on their apex, which soon coalesce into a disc about two lines in diameter; and as this enlarges peripherally the centre clears, forming a ring, the papular structure of which is more or less evident, while the central area is of a fawn colour. When several rings coalesce, the margin is broken, and a fawn-coloured, slightly scaly area is produced, resembling tinea versicolor, when of considerable size, but bounded incompletely by a red, gyrate, slightly raised papular margin. Isolated lesions of circles, or segments of circles, are situated in the neighbourhood of the main patch, and here and there are scattered papules ready to start a fresh one. Slight scaliness and marked greasiness (seborrhœa) are almost invariably present on the skin, and seborrhœa of the scalp is associated in a large proportion of cases.

Etiology.—The disease is most frequent in those who sweat freely and wash sparingly, and is so common in those who wear thick woollen underclothing that at the Blackfriars Skin Hospital it is familiarly known as "flannel rash." * It is more common in men than women.

* In some lectures on "Lichen," in the *Lancet* in 1881, I described and figured a fungus which I then thought was the cause of the disease, but further observation has convinced me that its presence was accidental. Micrococci are abundant enough, but where are they not?

Diagnosis.—The characteristic features are the fawn-coloured areas, with red, papular, ringed, or gyrate borders, situated in the middle of the chest and back, and never affecting the limbs. The position and yellow colour of the internal area render it easily mistakable for *tinea versicolor*, but the characteristic fungus of the latter disease is absent, and the tinea lacks the red papular border of the L. circinatus. The diagnosis from *pityriasis circinata* is given with that disease.

Treatment.—This is simple and effectual, and need only be local. Any mild parasiticide, such as glycerine of borax, thymol gr. 20 to adipis ℥j, rubbed in night and morning, will speedily remove the eruption, even when it has been present for years. A few weeks' watchfulness against recurrence, owing to insufficient treatment, and more frequent ablutions and change of underclothing, are desirable.

SEBACEOUS CYSTS.

Synonyms.—Wen ; Atheroma ; Steatoma.

Definition.—A cystic tumour with sebaceous contents.

Symptoms.—Sebaceous cysts vary from a millet seed to an orange in size, are roundish in shape, and either flattened or hemispherical. They may be single or multiple, of doughy consistency usually, but if inflamed, may become quite pultaceous, or if old, rather hard. They are freely movable under the skin, not tender or painful, and grow very slowly as a rule. The skin over them is normal, or white from distension unless they are inflamed, when it becomes red, and the cyst may break down and ulcerate and perhaps fungate, resembling a rodent ulcer (see "Follicular Disease of the Scalp"). Their commonest positions are the scalp, face, neck, and back, but they may grow anywhere where there are sebaceous glands, and in rare instances, even where there are none normally, such as on the palms, fingers, soles, in the floor of the mouth, under the tongue, and even in the anterior chamber of the eye after wounds. These are sometimes called dermoid cysts to distinguish them. When the duct is patent, they are usually flat, not very large, and are commonly situated in the thick skin of the back and neck ; but I have excised one as large as a walnut from the chest. It is from this

kind that so-called horns may develop (see "Cornua"). When the duct is closed, they are usually globose, and grow most frequently on the scalp, but are hairless. They are most common in middle-aged women.

Another form is the tumours in connection with the Meibomian glands, from a pin's head to a nut in size, though not often larger than a pea. To these the term **Chalazion** is given; they often recur, and are sometimes numerous. Although these little tumours are generally placed among sebaceous cysts, Virchow years ago, and quite recently Weyman, have shown that they are really neoplasms of the granuloma order; and, according to Weyman, a fungus can be demonstrated, which he calls the "fungus chalazicus," and considers it pathogenetic.

Pathology.—Sebaceous tumours are said to be caused by accumulations of epidermis and sebaceous masses in the follicles, with hypertrophy of their walls. Paget, however, regards them as new growths. The gland is obliterated quite early, and the secretion must therefore come from the cyst wall. The contents may be meliceric, *i.e.*, fluid and honey-like, consisting of free fatty granules and epidermic cells, or steatomatous of more firm consistence, with more epidermic cells and less free fat. Cholesterin is generally present, and sometimes coiled-up hairs. The cyst wall is described by Cornil and Ranvier, as made up of connective tissue with flat cells and parallel lamellæ of ground substance. It is lined with epithelium, comparable to that of the tunica interna of the arteries, and in it also fatty, calcareous, and atheromatous changes are common. To account for sebaceous cysts in the eye, palm, etc., after wounds, it has been suggested that, at the time of the wound, some part of a sebaceous gland had been transplanted on to the wounded part, but there are no known facts to support such a theory. Their possible origin from embryonic remnants in the cutis must also be remembered. Török's observations go to show that nearly all sebaceous cysts are really dermoids, that there are papillæ with an epithelial covering in the cyst wall, and that it was the exception to find fat in the cysts, and that therefore it could not be sebum. True retention cysts are macro- and microscopically distinguishable, and allied in structure to the double comedo.*

* L. Török, "Ueber die Enstehung der Atheromacysten (Epidermoide Franke)," etc., *Monatsh. f. prak. Derm.*, vol. xii. (1891), p. 437.

Diagnosis.—With the duct patent, the nature of the tumour is obvious, and some of the contents can be squeezed out as further proof. When the duct is closed, it may resemble a fatty tumour; but the position, and absence of lobulation, will generally indicate its nature.

Treatment.—The tumour should be excised, taking care to dissect out the whole sac, or it will re-form. The cyst itself is generally thin and easily ruptured, but it has a firm horny lining, which should be seized with the forceps after puncture, while the cyst is being separated. In chalazion the incision over the tumour should be made on the conjunctival side, so as to avoid a visible scar.

Multiple Dermoid Cysts. Only a few cases are on record. They may occur in large numbers all over the body. Jamieson * reports a case where there were two hundred and fifty, Maclaren where there were one hundred and thirty-two. Hebra and Rayer have also each had a case. They are all remarkably—in fact, as a rule, indistinguishably—like fibroma tumours, from a pin's head to a hazel nut in size, until excised, or at all events incised, when sebaceous-looking matter escapes. In a case of Sangster's, reported by Pollitzer, although most of them were like fibroma nodules, and therefore the colour of the normal skin, those over the mastoid process and clavicles were of a lemon yellow, and were generally thought to be xanthoma until they were excised, and Pollitzer found that they were typical dermoid cysts, the wall presenting a well-marked papillary layer, the contents made up of cornified and degenerated epithelium and detritus, and in most cases, a coil of hair and brownish or black pigment. Their numbers and benignity forbid treatment, unless they are in an awkward or unsightly position, when they might be excised.

Follicular Disease of the Scalp. In *Guy's Hospital Reports*, Edward Cock,† and subsequently Goodhart, published a series of

* Jamieson, *Edin. Med. Jour.*, September 1873, p. 223; P. H. Maclaren, *Edin. Med.-Chir. Soc.*, 1886-87; Pollitzer, *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. ix., August 1891; and *Brit. Jour. Derm.*, vol. iii. (1891), p. 398,—also referred to under "Xanthoma." For a full account of dermoids, Bland Sutton (Baillière, Tindal, & Cox: 1889) should be referred to.

† *Guy's Hospital Reports*, 2nd series, vol. viii., Part I., 1852, p. 151, several coloured illustrations; *ibid.*, 3rd series, vol. xviii., 1873; *Hutchinson's Archives*, vol. ii., No. 8, 1891, plate xxix.

cases of tumours of the scalp which ulcerated and in some cases fungated, and were supposed to be derived from the sebaceous follicles. A still more extensively fungating tumour is published by Hutchinson, supposed to be secondary to a sebaceous cyst. These growths were chiefly situated on the crown of the head, but may also come elsewhere about the head and face. Goodhart examined the tumours, and found them to be mainly composed of epithelium, with imperfect septa of ill-developed fibrous tissue. They all seem to start from sebaceous cysts, and are, in spite of their epithelial structure, evidently benign. Rivington removed the very large fungating growth reported by Hutchinson, chiefly with Paquelin's cautery. The operation was attended with profuse hæmorrhage, but there has been no recurrence.

MILIUM.

Deriv.—Milium, a millet seed.

Synonyms.—Grutum ; Strophulus albidus ; Acne albida ; Tuberculum sebaceum.

Definition.—A small pearly-white sebaceous tumour, situated just below the epidermis.

Symptoms.—Milia are situated chiefly upon the face, especially upon the forehead, orbit, and cheeks ; they are generally about the size of a millet seed or smaller, and occasionally as large as a small pea ; they may be in small or large numbers, are quite white when small, and may be translucent, spherical in shape, quite superficial, form slowly up to a certain size, and then remain stationary for years.

Variations.—As a rule they have no special arrangement, but I have once seen them arranged symmetrically on the "clown-patch" of the cheeks in a young woman in the same way as will be described in comedones, and groups on the inner canthus are common in elderly persons. Occasionally, they may be seen in other parts of the body, such as the scrotum and penis. Here, and on the eyelids, they coalesce into comparatively large flattish tumours from a pea to half a bean in size, assume a yellowish colour, and may become very hard from the deposition of calcareous

salts, chiefly phosphate, with a little carbonate of lime, and constitute then the so-called **cutaneous calculi.***

In old persons, a special form may sometimes be seen on the face, especially on the forehead, where slight degrees are not uncommon, and on the nose. One of the most extensive cases was that of a woman, æt. sixty, who had some jaundice, probably from carcinoma of the liver. She had been densely freckled all her life, the freckling extending down to the lower-rib margin in front, and all over the back. Besides this, round the orifices of all the glands of the whole face were flat, very pale yellow accumulations in the form of discs, $\frac{1}{16}$ to $\frac{1}{8}$ inch in diameter, with a minute slightly depressed puncture in the centre. They were very closely set all over, but discrete, not at all raised above the surface, not perceptible to the touch, and suggested a fatty degeneration of the epithelium round a follicle, a veritable "**atheroma cutis**" † very like that of the inner coat of an artery. I have seen a very similar condition all over the neck of a woman with jaundice and general xanthoma, but the lesions themselves were quite different from xanthoma, and slight degrees are common when there is no suspicion of hepatic disorder. It appears to be part of the degenerative changes of old age, but the histology has not been examined; indeed, I have not read any description of it, and it is only placed here provisionally.

Etiology.—Milia are common in young infants (**strophulus albidus** of Willan), probably from over-stimulation of the skin by being held too closely to the mother. They are most common in young adults, frequently in association with acne vulgaris, and sometimes follow pemphigus, forming small groups or single spots on the site of the bulla. Less frequently they may be seen after superficial inflammation from erysipelas, or cicatrices after atrophy or ulceration, as in lupus and syphilis. Frequently, there is no assignable cause.

Pathology.—They are usually considered to be due to retention of secretion in some of the acini of a sebaceous gland, or to be

* Barlow met with concretions of this kind on the abdomen, and Foster of Boston is quoted by Duhring as having met with one on the face of a young woman, where it formed a small, oval, hard tumour.

† A case of universal multiple atheroma, by Chiari, is reported, but it had many differences from the preceding, *Brit. Med. Jour.*, Vienna Corr., September 12th, 1890.

undeveloped glands ; but Robinson * of New York thinks that they are of two kinds, of which one consists of "miscarried embryonic epithelium from a hair follicle or from the rete," which contains no fatty epithelium and has no duct ; the other has a duct and is really a deep-seated comedo, the contents consisting of fatty epithelium and cholesterin.

Diagnosis.—The milium masses on the eyelids of elderly people may be mistaken for *xanthoma* (see that disease for the marks of distinction). The usual white globules are quite unmistakable.

Treatment.—Having no duct, an incision should be made over them, and they are readily shelled out. A touch of iodine tincture may be applied to the sac if they recur. Hardaway recommends electrolysis by passing a fine needle, connected with the negative pole of the battery, into the little tumour. In infants, the free use of soap and water is generally sufficient.

COMEDONES.

Deriv.—Comedo, a glutton.

Definition.—Black, pointed papules formed by sebum blocking the orifice of the duct.

This common affection is seen chiefly on the face and back, neck and chest. Each comedo forms the well-known black, pointed, pin's-point-sized papule so conspicuous on the face of many adolescents and young adults, and occasionally in older persons. They vary in number from one here and there to myriads, peppering, so to speak, the whole countenance, but are most abundant on the forehead, sides of the cheeks, and the nose. When numerous, they are associated with more or less oily seborrhœa, and as they are very liable to inflammation, acne vulgaris in one or other of its phases is seldom absent. They can easily be expressed by the nails, looking like a maggot, and on the back and chest are often comparatively large, and may be double from the fusion of two adjacent plugs, with a bridge of skin between the orifices. Sometimes comedones contain the acarus † folliculorum.

* Robinson's *Manual of Dermatology*, p. 73.

† To see the acarus, ten or a dozen comedones should be taken, and teased out in glycerine. They do not appear to have any pathological importance in the human subject, but a similar acarus in dogs sets up considerable inflammation, constituting "follicular mange."

Lang showed a case to the Vienna Dermatological Society with comedones on the glans penis and prepuce; and beside this rare position, there was the additional rarity of atrophic scars at the orifice of the follicles. Neumann showed a similar atrophic scarring from comedones all over the usual positions in a woman.

The etiology, pathology, and treatment are discussed along with acne vulgaris.

Grouped Comedones. These differ from the preceding in their position, arrangement, and etiology, and in having no relation to acne vulgaris. Thin* was the first to write about them, and I published cases corroborating what he had said, and showing that further observation by myself and others pointed to dyspepsia as the commonest predisposing cause, and that they occur chiefly on the cheeks and those parts of the face where flushing after meals is most marked. They form symmetrical groups of densely crowded black points on both sides of the face, and the individual lesions are much smaller and more uniform in size than in most cases of ordinary comedones. There is little or no tendency to inflame and suppurate. I have twice seen densely crowded comedones on the trunk, but without any tendency to group, and associated with suppuration of a large number of them. One was in an old man, and they were all over the abdomen; the other was a case of Sangster's, which he kindly allowed me to photograph—a middle-aged man, in whom the upper part of the chest and nearly the whole of the back were involved. These are not to be classed with the preceding cases.

Children.—Hitherto comedones have been considered to be an affection not seen before puberty, but in June 1882 I saw it at the East London Hospital for Children in a child aged three and a half years. This was soon followed by other cases, and similar instances have been met with by other observers, and it is now not an uncommon affection among the poor in summer; yet it is apparently a new condition, as I know of no previous notice of the affection prior to my own.† They appear on the upper part of the forehead and corresponding parts of the occiput in boys

* *Lancet*, October 13th, 1888, and by myself October 27th,—both papers illustrated. See also Wetherell and Sympson, who report single cases in vol. i. for 1889.

† See *Lancet*, April 19th, 1884; also a letter by Julius Cæsar, on May 6th, in the same volume, and an article by Colcott Fox, April 7th, 1888.

above three, on the temples in girls, and on the cheeks in infants, and occasionally in other situations. They are usually very densely packed, often grouped, occasionally symmetrically, like the adult cases, and give the part a very dirty and sometimes black appearance, and seborrhœa is often present on the head. The contents are rather firmer than usual, containing less fat. They do not often inflame spontaneously, but do so if roughly squeezed.

The condition appears to be due to warmth and moisture, and perhaps to other local irritants in predisposed subjects ; it corresponds to the position of the cap in boys, and in infants appears to be due to their being held closely to the mother in nursing. I have seen it from the use of linseed poultices all over the back and chest, many of the comedones suppurating like ordinary acne. I have also known it to occur simultaneously in several members of a family, and it was stated to have attacked a large number in a school, suggesting some bacterial or other source of contagion. Haddon and others have met with similar instances pointing to contagion.

Their chief peculiarities consist in their being apparently due to local causes, among which want of cleanliness is the potent factor ; in their tendency to group and to be more closely set ; in their involving the hairy scalp ; in their being less likely to set up inflammation, and in their amenability to local treatment. Bathing with hot water, followed by friction with a liniment of sapo mollis half an ounce, spiritus vini an ounce and a half, or in slight cases rubbing in a weak sulphur ointment, or an alkaline lotion, such as glycerine of borax one part to three of water, are generally sufficient for their removal. A perchloride of mercury lotion 1 in 1,000, after soft-soap frictions is also recommended.

ACNE.

Deriv.—*ἀκνή* or *ἀκμή*, a point, or, as some think, *a*, privative, and *κνέω*, to itch.

Synonyms.—*Lat.*, Varus ; *Gr.*, *ἴονθος* ; *Fr.*, Acné ; *Ger.*, Hautfinne.

Definition.—The term acne is used for the lesions produced by pustular inflammation in and around the sebaceous glands and hair follicles.

Under this head are included :—(1) Acne vulgaris or adolescentium, with the varieties acne cachecticorum and acne artificialis (all sebaceous); (2) Acne varioliformis (sebaceous or follicular); (3) Acne rosacea (partly sebaceous).

Whenever the duct of a sebaceous gland is occluded, inflammation is very likely to ensue.

In A. vulgaris, the sebaceous secretion itself forms the plug. In tar acne, and the acne occurring in those engaged in greasy occupations, the tar and fat stop the excretion of the sebum.

In A. cachecticorum and in the so-called bromide and iodide acne, the changes are probably in the blood vessels; the latter and tar acne are described under drug eruptions. In A. rosacea, the sebaceous inflammation is also secondary to the blood-vessel alteration, which produces the chief symptoms, while we are quite ignorant of the pathology of A. varioliformis.

ACNE VULGARIS.

Synonyms.—Acne adolescentium; Acne disseminata; Stone pock.

Definition.—Inflammation of the sebaceous glands due to retained secretion, occurring chiefly in young people.

A. vulgaris is a very common disease in adolescents, though it does not form more than $2\frac{1}{2}$ per cent. of all forms of skin disease which come to a special department, but in private practice it forms 7 per cent. It is of all grades of severity, from one or two small pustules at a time, up to thickly aggregated papules, pustules, and nodules in all stages of development and retrogression. Whilst each stage of development has received a different name, A. cachecticorum, with its sub-variety A. scrofulosa, is the only kind which is entitled to a separate designation and description.

Symptoms.—The disease does not occur before puberty; it is common from then onwards for about ten years, and declines almost to a vanishing-point at the age of thirty. It is limited, in the great majority of cases, to the face (chiefly at the sides and on the forehead, but it does not go back into the scalp), the neck, chest and back, chiefly about the shoulders, and its extent is largely dependent upon the number of comedones present, round which the inflammation commences, and forms at first a red papule,

soon becoming a pustule on a red raised base, with a central black point (**A. punctata**), or if the sebum is within the gland, instead of at the orifice, there is a pustule without an obvious comedo (**A. simplex**). When the pustule with its red base enlarges to the size of a hemp seed or small pea, it is **A. pustulosa**, and when the inflammation extends to the tissues round the gland, or begins deeply so as to form a hard, pea to a bean-sized, deep red or purplish nodule, which subsequently softens in the centre, but seldom ruptures spontaneously, as it has no orifice, it is **A. indurata**. But all these names are superfluous, and will doubtless be dropped eventually. These lesions, although bi-lateral, are not symmetrical, are discrete, and not grouped in any way; hence the term *disseminata*. The process may stop short at any of these stages, especially if the contents be evacuated without violence; but as fresh lesions frequently form, and others involute or discharge, all phases of the eruption may be seen simultaneously in one patient. A. indurata, however, occurs chiefly in strumous subjects, and leaves livid indurations, which slowly disappear. The small, superficial pustules may leave no scars, but the larger and deeper lesions lead to considerable scarring and much consequent disfigurement, and on the chest and back small keloid tumours sometimes develop in the cicatrices. In some instances, the comedones are numerous, but only a few inflame; in others, a large proportion go on to acne lesions. Where the comedones are abundant, more or less seborrhœa, especially the oily form, is present, and the complexion is thick and muddy. Beyond the disfigurement and the tenderness of the large pustules the eruption produces but little inconvenience.

Variations.—A. vulgaris occasionally persists after thirty, and may exist to some extent throughout life; the back and chest are then considerably involved, with large indurated nodules, and I have seen the whole back one mass of confluent scars, pustules, and large comedones. Under adverse conditions the disease may generalise, as in the case of a clerk,* æt. twenty-one, who was always subject to A. vulgaris in the usual positions, and after over-work and loss of rest, the whole face, trunk, and limbs to the elbows and knees were in four days thickly covered with red papules and pustules of the usual acne type, each pierced by a

* *Private Notes*, 1880, p. 101.

hair, or with sebum at the orifices; the glands also in the axillæ and groins were enlarged.

This exceptional generalisation of A. vulgaris constitutes **A. cachecticorum**, which is not limited to certain regions, but occurs anywhere, except on the palms and soles. The lesions are not due, as a rule, to retention of the secretion, and there are therefore no antecedent comedones; hæmorrhages frequently take place into the pustules, which have then a livid border and leave long persistent, purplish scars behind them. In this form, it may be seen sometimes during recovery from scurvy, and I have seen a few cases in middle-aged and elderly people due to semi-starvation.* It may also in rare instances attack the follicles of the limbs without any cachexia or traceable cause, of which I have seen a few instances.

A. scrofulosa is a variety of the above which occurs in strumous children, especially in those who already have general seborrhœa or lichen scrofulosus, in whom acne pustules appear in varying numbers; epithelial occlusion of the gland orifices is probably the proximate cause in these cases. A moderate number of acne pustules as a complication is not very uncommon; but in rare instances there is a widespread acneiform folliculitis on the sides of the face, the extensor aspect of the limbs, and very abundantly on the lower part of the back and buttocks. The distribution is, I am inclined to think, to some extent characteristic, as in the few cases I have seen it has been the same, the front of the body being free from the eruption. Other pronounced strumous manifestations are nearly always present. This eruption occurs in quite young children. The last of my cases was only five years old.

With regard to Barthélemy's† acnitis, I am inclined to agree with Pollitzer that it belongs to hydradenitis (p. 157), as the clinical description closely corresponds to that of Pollitzer's case and my own; but if it is not hydradenitis, it should be placed with folliculitis, and not with acne.

As a variety of acne, should be placed, in my opinion, the condition described by Tilbury Fox as—

Disseminated Follicular Lupus, simulating acne, of which he

* One of these, a well-marked case, was published by Tilbury Fox in the *Lancet* of April 5th, 1878.

† *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 1, with coloured plate.

reports three cases. The eruption was in all three (two female and one male) in young people, confined to the face, especially in the usual acne positions; the papules were from a large pin's head to a pea in size, conical and deep red, and some had a yellow spot in the centre, as if suppurating, but there was no pus or anything except blood to be squeezed out. In the youth I saw, all the papules were discrete and uniformly deep red, and they remained unchanged from the time of their first appearance, but in the other two cases, two or three papules coalesced into what Fox considered "lupus-like tissue" with minute scales upon it; but there was never any ulceration or other change, except that occasionally, in the first two cases, a papule would die away and leave a pit behind. As far as my memory goes, individually, the lesions were very like those of what we now know as adenoma sebaceum; but they were rather more conical and disseminate, not and massed together at the naso-labial fold, as are those of adenoma sebaceum. In two cases, there was a family history of phthisis, which to some extent, perhaps, favours Fox's view, but microscopically there was fibro-cellular infiltration, chiefly in and around the sebaceous glands, and I should rather term it **adenoid acne** than any form of lupus. The only treatment that was of any avail was complete destruction with the acid nitrate of mercury carefully applied.*

Duhring of Hamburg published two cases of lupus miliaris in the *Monatshefte*, but they do not seem to be of the same nature as the preceding cases. G. T. Fox's case of "lupoid acne" is acne varioliformis, as he himself acknowledged. It is better to drop such ambiguous terms.

The following case is an example of a very rare form of acne.

Nathan J., æt. twenty-five, a tailor, first seen in January 1885, had suffered from an eruption, off and on, for two years. It was situated about the nose, cheeks, and forehead, the sides and front of the neck, the extensor aspect of the forearm, wrists, hands, and fingers, on the side of the forefinger, on the front and back of the thighs, but there were no lesions below the knee; the distribution was evidently where the hair follicles were most abundant, but also in a few parts where the hair follicles were doubtfully present; three or four lesions at a time came out in various places, but were

* *Lancet*, July 13th, 1878. His third case was under my observation for some time, and the microscopical examination of the papule, depicted in the paper, was made by myself.

not grouped. The eruption consisted of indolent, inflammatory, very firm, conical papules, from one-sixteenth to a quarter of an inch in diameter, in the centre of which was a nail-like plug of horny epithelium, which left a rather deep hole, when picked out; some of these suppurated, forming a small pustule on a conical red base, which only took a day or two to form, but after the pustule was ruptured the inflamed base remained unchanged for weeks. When first formed, it was only a pin's-head-sized, slightly red papule with a small horny plug, but both the plug and base increased in diameter, and it was not until the whole was a quarter of an inch in size that suppuration took place, and then only in a certain number. Each lesion was very slow in its course, but ultimately the induration was absorbed, leaving scarring and pigmentation in some places. Subsequently some of the lesions on the face enlarged to half an inch in diameter, forming much inflamed, indurated, raised nodules with a flattish top, which softened in the centre almost like a carbuncle, but the central mass was slow in separating. The general health was good, the patient was badly marked with small-pox, but there was no evidence of syphilis, and specific, and indeed all other treatment, had no effect on the development or number of the lesions. Some years later, I traced him out, and found that he had completely recovered, and not from any special treatment. When first shown to the Dermatological Society, no one except Mr. Hutchinson had seen a similar case, which was also rebellious to treatment.

It resembled an acne, in which the horny plug took the place of the comedo, and by its presence excited inflammation; presumably the plug was formed in the hair follicle, instead of in the sebaceous gland, as in ordinary acne. If other cases appear, and a name be required, **A. keratosa** would be appropriate. It is not the same as the "acné sébacée cornée," which is a horny form of ichthyosis.

Etiology.—Comedones and acne may be considered as almost identical as regards etiology; males and females are equally liable to them, and in hospital practice three-fourths of my cases were between the ages of fifteen and twenty-three, the extremes being thirteen to forty-four years; but one private case, a diabetic man, was sixty-seven years of age. Practically the disease is only prevalent from thirteen to thirty. It is difficult to assign a positive causation to the comedo except puberty.

There are, however, conditions which predispose to it. The frequency of acne in people with a thick skin and a sluggish circulation points to these as factors. Local causes, such as cold winds, the use of irritating cosmetics, working with tar, insufficient washing, play a certain part, either by plugging the orifices or irritating the glands; but far more important is reflex hyperæmia, produced by derangement of the alimentary canal, especially constipation and dyspepsia, which were present in a large proportion (more than half of my cases); uterine and ovarian disorders, especially those which lead to catamenial derangement, are also causes, and, even when this function is undisturbed, the eruption often undergoes exacerbation immediately before a period. All debilitating causes predispose to acne, of which anæmia and chlorosis, too rapid growth, and perhaps masturbation, may be especially mentioned; mental and physical exhaustion have preceded fresh outbreaks in many cases; struma and scurvy not only cause, but modify, the kind of inflammation, leading to freer suppuration than usual.

Pathology.—The comedo is retained sebum, consisting of epidermic cells more or less fatty, cholesterin and detritus, and perhaps a lanugo hair or fragments of it. This blocks and dilates the ducts, either at the surface, where it gets blackened by dirt, or deep down, and the gland itself may also be distended. A parasite called the demodex folliculorum may also be present, but has no pathological significance. The retention of the sebum is probably due to simply a slight excess of physiological activity, producing more sebum than can be disposed of in the usual way, coupled with less perfect fatty change of the epithelium than usual, owing to rapid production. This retention is very liable to lead to inflammation of the gland and neighbouring structures of varying extent and intensity, and thus acne is produced. At first the hyperæmia and exudation are mainly in the wall of the gland, as in A. simplex, and later in the connective tissue round; and when this is extensive, A. indurata is the result. When suppuration is free, total destruction of the gland and follicle ensues, and results in a depressed scar; but in slight degrees of inflammation, the gland may recover and no scar follow. The process is almost always acute, but a permanent increase of connective tissue is sometimes produced by A. indurata.

Diagnosis.—The age of the patient, the dissemination of the

lesions on the bust only, as a rule, the acute course of the individual lesions, the chronicity with exacerbations of the disease as a whole, the anatomical seat of the pustule, together with the presence of comedones, generally prevent any trouble in the diagnosis. The diagnosis of the so-called *drug acnes* is discussed with the drug eruptions.

A. rosacea occupies only the middle two-thirds, while A. vulgaris predominates on the sides of the face. A. rosacea patients are older, as a rule, past thirty, and the sebaceous inflammation is only a part of the disease, the main feature being diffuse hyperæmia of the face and dilated vessels.

When A. vulgaris is generalised, the circumstance under which this generalisation occurs and the anatomical seat of the lesions will guide to a correct conclusion. The acute cases which somewhat resemble *variola* may be distinguished by the duration of the eruption, the absence of constitutional symptoms, and the absence of the eruptions from the forearms and wrists.

The *syphilitic* eruptions which resemble acne tend to group, which A. vulgaris never does.

Prognosis.—The ultimate result in all but a very few is spontaneous recovery. Most cases are quite well before twenty-five years of age, and few last beyond thirty. Treatment may, however, much shorten the period, and either completely cure or greatly ameliorate it. Success depends in most cases, on the possibility of detecting the cause, and being able to remove it; and the apparently causeless cases are generally the most obstinate. Where the suppuration is deep or very free, more or less scarring results, but the majority of the lesions are superficial, and leave no permanent trace behind.

Treatment.—The treatment of acne must be both general and local; for although local treatment alone will remove any eruption that may be present, in most cases, only general treatment, judiciously planned, and perseveringly carried out for a considerable period, will prevent its recurrence.

The measures to be adopted are hygienic, dietetic, and medicinal, and should aim at the general invigoration of the patient and the removal of digestive and other derangements; cold sponging of the whole body every morning, as much out-door exercise as the patient's strength admits of, at the same time avoiding or protecting the face against cold winds, and regular and early hours, are

generally necessary. The diet should be unstimulating, and where there is the least tendency to indigestion, highly seasoned dishes, pastry, sugar, and indigestible food generally, together with beer and the stronger alcoholic drinks, should be avoided altogether, or taken very sparingly. When there is debility or constipation, which are frequently associated, the elder Startin's mixture of iron and aperients (Mixtures, F. 16), etc., is most useful; if there is dyspepsia, soda and a bitter (F. 8—10) are often a necessary preliminary to more tonic measures, such as Parrish's food, Easton's or Fellowes' syrup, the mineral acids and nux vomica (F. 11 and 12). Small doses, ɱij or ɱiij, of liquor arsenicalis, may be given for its tonic rather than for its direct effect on the skin, though it also appears to be directly beneficial in some cases, where the inflammation tends to stop short of suppuration, but it must always be given cautiously, or by upsetting the digestion, it will aggravate the eruption. In the strumous diathesis so often present, cod-liver oil with the syrup of the iodide or other form of iron is essential, and the oil is often advantageous in other cases, as soon as the digestive organs will tolerate it. Of the more direct remedies, sulphide of calcium, a quarter to half a grain three times a day, is indicated, whenever there is a tendency to free suppuration, and glycerine in half-ounce doses is recommended by Desquin of Antwerp, Bulkley, and Gubler, as generally useful in acne.

Locally, when comedones predominate over the inflammatory lesions and the skin is not very delicate, the spiritus saponis alkalinus of Hebra should be rubbed in every night for several minutes, with a piece of flannel, previously moistened with water, and the lather left on; sometimes it irritates the skin, and its application must then be followed by smearing on a little glycerine of starch or almond oil; or it should be used only every other night, while in very sensitive skins it cannot be used at all; the safest way, therefore, is to apply it over a small area at first. A less irritating remedy is No. 3 Krankenheil Spring soap, the lather being left on all night. Bathing with water as hot as it can be borne, or holding the face over steam from a bronchitis kettle or Lee's steam draught inhaler, is a good preliminary to the pressing out of the comedones, which prevents the development of pustules if done gently, but undue force sets up the inflammation that these various methods are designed to avoid. Many instruments have been devised to

facilitate their removal, one of the best of which is Clover's * acne presser (fig. 54). The central hole is placed over the comedo, and moderate pressure with a shaking motion expresses it. A watch-key may also be used, but the sharp edges make it more painful, and likely to bruise the tissues without great care.

When suppuration has occurred, the earlier the pustule is punctured the less likely is there to be a scar; and even when there is no pus visible on the surface, a deepish puncture of the red papule will generally give exit to a little bead of it. In A. indurata, the incision should be more free, or multiple punctures, followed by bathing with hot water to encourage bleeding, is a good plan. After the incision, the puncture should be sterilised either by rubbing in iodoform or europhen, or, still better, by syringing in with a hypodermic syringe a 1 in 60 solution of carbolic acid. At first, every fresh tender papule should be done every day; but very soon twice a week, and then once a week, will

Fig. 54.—Clover's acne presser.

be sufficient. If the patient has the courage and perseverance to go through with this treatment, there is no doubt that bad cases improve more rapidly by it than by any other. Kaposi's lancet is made for the patient's own use, but very few have the knowledge and resolution to use it effectually. Instead of using steady pressure, they give themselves a sudden superficial prick, and fail to evacuate the pus.

Where the knife is dreaded, each tubercle may be touched once or twice a week with strong carbolic acid (95 per cent.), or the acid nitrate of mercury strong or diluted 1 to 4; care must be taken in using the strong acid nitrate of mercury, or scarring will ensue. Another plan (Stellwagon) is to apply a 1 per cent. to 4 per cent. solution of bichloride of mercury, three times the first day, and every three or four days subsequently. Sulphur in some form is useful in nearly all stages of acne; the precipitated sulphur may be scented, and applied with a powder puff three or four times

* Piffard, apparently unaware of Clover's instrument, has described a precisely similar one, except that it is curved in the shank.

a day; a lotion of ʒij of sulphur sublimat., æther. spirit. vini and glycerine, with aqua calcis and aq. rosæ, of each ℥iv, may be applied at intervals; or an ointment of precipitated sulphur ʒj to ʒiv to the ℥j of lard or vaseline; or a saturated solution of sulphur in vaseline may be used; hypochloride of sulphur ʒj to the ℥j of benzoated lard, is one of the best, but must be always freshly made, and kept in a stoppered bottle; sulphide of potassium ʒj to a quart of water is a good but disagreeable remedy, and is much improved by adding ʒj of tincture of benzoin; iodide of sulphur gr. 10 to gr. 60 to the ℥j, or sulph. præcip. and alcohol (Hebra), are other forms of using sulphur. For acne of the back, friction with a towel dipped in sea-water is beneficial.

When the hyperæmia is very great, soothing remedies may be necessary at first; a bismuth or calamine lotion, with a quarter of a grain of hyd. bichlor. to the ℥j, is good; this may be used in the day after the more stimulating applications, and partially conceals the

Fig. 55.—Kaposi's acne lancet.

eruption in addition to its sedative effect. For obstinate cases of A. indurata, hyd. iod. gr. 2 to gr. 15 to ʒj, or hyd. biniodid. gr. 5 to gr. 20 to ʒj of benzoated lard, may be cautiously applied. These are only samples of a host of local remedies, all more or less useful in properly selected cases.

ACNE ROSACEA.

Synonyms.—Rosacea; Bacchia rosacea; Gutta rosacea; Gutta rosea; Acne erythematosa; *Fr.*, Acné rosée; Couperose; *Ger.*, Kupferrose; kupferfinne; kupfriges Gesicht.

Definition.—A chronic congestion of the face, leading to permanent vascular dilatation, with more or less secondary sebaceous inflammation.

A. rosacea is a rather common disease, though it does not form more than 2 per cent.* of all cases in hospital and 5 per cent.

* Bulkley's statistics in his monograph on acne are 1 in 70 in hospital practice, 6 per cent. in private practice, and about 3 per cent. in hospital and private practice.

in private practice. It is limited to the face, usually the middle third of the long diameter, and is of varying intensity, three grades of which may be conveniently distinguished; but all cases do not pass through them, as the condition may be arrested at any point.

Symptoms.—At first, there is simply temporary flushing after meals, exposure to changes of temperature, or, in women perhaps, just before the catamenial period. When this has gone on unrelieved for some time, the face becomes permanently red, and many small vessels become prominent and varicose. The change is limited to the middle two-thirds of the face, affecting the cheeks, nose, chin, middle of the forehead, and occasionally the front part of the scalp in bald people, or to one or more of these regions, but the nose seldom escapes. The border of the redness is ill-defined, the vascularity can be obliterated for a moment by pressure, and the hyperæmia being largely passive, the circulation in the skin vessels is sluggish. When very prominent, there is often seborrhœa nasi; many ducts on the nose are plugged with sebum, imparting to it a greasy feel, and when it has lasted for some time, in spite of its fiery redness, it is often colder than normal to the touch. Distended varicose vessels appear on the sides and tip of the nose and on the cheeks, and the disease may go no further; but more frequently, after a variable time, usually months or years, but sometimes almost simultaneously with the permanent hyperæmia, papules, pustules, or nodules develop, which can generally be shown to have their origin in the sebaceous glands. This constitutes the second stage. In women and in the majority of men, although there are fluctuations, there is no material increase of the disease beyond this stage; but in chronic drinkers, especially if they are are also exposed to the weather, *e.g.*, coachmen, there is an increase of connective tissue round the vessels, leading to permanent, intensely red, but non-inflammatory, nodulated thickening of the tip and sides of the nose, expanding it both laterally and longitudinally (**A. hypertrophica**), while in extreme cases these excrescences develop into pendulous stalked tumours (**rhinophyma**), over-hanging the mouth and lower parts of the face. These extreme developments are very rare; I have met with one as large as a good-sized pear, and they may be larger; in another case, very large and lobulated, the patient, an alcoholic cabman, said the growths began shortly after being kicked in the face by a

horse. Probably some determining factor is generally required, as alcoholic coachmen are common, and rhinophyma is rare. Hans v. Hebra * goes further, regards it as a disease independent of A. rosacea, and says that it may arise in temperate men and total abstainers. While it may be admitted that alcohol plus exposure is not the only cause, it cannot be disputed that the extreme forms are more frequently met with in chronic alcoholism, and minor degrees of hypertrophic noses are notoriously so.

According to F. Hebra, A. rosacea is, in spirit-drinkers, more frequently limited to the nose, and consists of vascular dilatation and seborrhœa; while in wine-drinkers, the redness is diffuse and seldom limited to one region, and the whole face is bloated; and in those who affect beer, cyanotic thickening with small nodules and pustules is more frequent. These distinctions are probably fanciful.

Etiology.—The disease is seen much more frequently in women than in men (five to one), but the difference diminishes after forty years of age. The age of onset, for the bulk of the cases, is over twenty-five years, beginning, in fact, at the age when A. vulgaris is ceasing to appear. The extremes I have met with are, eighteen years in a female and seventy-two years in a male. This does not include the chronic passive hyperæmia associated with feeble circulation, of which my youngest was sixteen years; and Bulkley met with one æt. fourteen years, probably of this kind, and of a true A. rosacea æt. eighty-four. Comby,† however, breaks the record with a rickety child of three, whose parents quenched his frequent thirst with cider and water.

The main cause for both sexes is disorder of the alimentary canal, chiefly associated with the range of symptoms included under dyspepsia; flushing after meals, constipation, and lithæmia being among the commonest symptoms. In women also, uterine disorder is a common cause, and even when there is no apparent uterine trouble, the eruption is generally worse just before a period. A feeble circulation and exposure to inclement weather, or vital depression from illness, overwork, anxiety, etc., strongly predispose to the eruption, or aggravate it, if already present. Excess in alcohol in any form especially favours the development

* "Rhinophyma," *Viertelj. f. Derm. u. Syph.*, 1881, Heft iv., with histological plate. It is depicted in F. Hebra's *Atlas*, Heft vii., Tafel 6, and the case of the cabman will be published in my *Atlas*.

† *Le rachitisme*, p. 123 (Paris: 1892).

of the worst forms of the disease, and occasionally it appears to be due to local irritants, *e.g.*, ill-advised cosmetics.

Pathology.—The first change appears to be congestion, beginning in the deeper vascular layer of the corium, but afterwards affecting all the vessels. This congestion, generally of reflex origin, but sometimes from a direct irritation, is followed by secondary seborrhœa or inflammation in the sebaceous glands, and perhaps other parts of the skin, producing sooner or later papules, pustules, or nodules, and ultimately paretic changes occur in the walls of the vessels, which become permanently dilated, thickened, and perhaps even new vessels form. In the hypertrophic cases, there is a formation of new connective tissue round the vessels, and the rhinophymata are mainly composed of connective tissue. This makes the disease primarily a vaso-motor reflex neurosis, while Schwimmer regards it as a tropho-neurosis, on what appears to me to be inadequate grounds. Other theories have also been advanced, but do not fit the facts so well as the above.

Anatomy.—G. Simon examined a nodule from a drunkard's nose, and found that it consisted of connective tissue, traversed by enlarged vessels. The sebaceous glands were also enlarged, and filled with hardened sebum. He regarded the other changes as secondary to those of the sebaceous glands. Piffard examined a tumour weighing an ounce, and found that it consisted of connective tissue, with thickening of the rete and enlargement of the papillæ. The sebaceous glands were degenerated where they were pressed upon by the fibrous tissue, but not otherwise changed. On the other hand, Hans v. Hebra found in hypertrophic acne a connective-tissue new growth with numerous dilated and new vessels, the sebaceous glands numerous and enlarged, due, he considered, to the fibrous tissue cutting off some of the acini from the rest of the gland; and as secretion continued in these detached portions, the glands multiplied, while the retained sebum irritated the surrounding tissue to fresh growth. Rokitansky also found a large tumour to be entirely composed of fibrous tissue, containing large vessels, with no sebaceous changes. In my own case, the sebaceous glands were very abundant and conspicuous.

Diagnosis.—The age of the patient at the onset of the disease, the history of flushing after meals, alcohol, or exposure to changes of temperature, etc., the obvious vascular dilatation, the limited area, and symmetry* of the eruption, the papules and pustules following,

* In an express-train engine-driver, this symmetry was curiously broken through by his occupation. The left side of the face, which was always on the outer side as he stood on the engine, was badly affected, while the right protected side was free from eruption.

not preceding the other symptoms, and the slow development of the disease, are its most diagnostic features, and distinguish it from *A. vulgaris*, in which there are comedones and no general redness, while the eruption is chiefly on the sides of the face, and often on the trunk as well.

Erythematous eczema is much more acute in onset and development, is not limited to the middle of the face, desquamates from the beginning, and is associated with irritation; nor are there the pustules of A. rosacea.

In *erythematous lupus*, the surface is generally scaly, often with scarring, more projecting than the hyperæmic stage of acne, more defined and raised at the edge, and lacks the nodules of the hypertrophic stage of rosacea. At the same time, in the early stage of acne, the sebaceous accumulation in the follicles may lead to mistakes, if all the features are not taken into consideration.

Some cases of *superficial nodular syphilides* are very like A. rosacea, but being a tertiary condition, the syphilide is not symmetrical, very likely to ulcerate, more rapid in development, and the border more defined; it varies less with the surrounding conditions, and lacks the telangiectases of A. rosacea, in which also there are no ulcers, crusts, or cicatrices. Evidence of past syphilitic lesions can generally be found elsewhere in the case of a nodular syphilide. The possibility of mixed conditions must, however, always be borne in mind in a chronic disease like A. rosacea, as of course it does not exempt from other eruptions. Thus I have seen iodide acne associated—a puzzling combination suggestive of syphilis. The localisation was a guide to the rosacea, and the free suppuration to the iodic eruption.

Prognosis.—Considerable relief can generally be afforded, and often complete removal of the eruption can be effected, with care and perseverance on the part both of patient and physician, in cases of the first and second degree, but the return of the eruption can only be avoided by the removal of the cause and avoidance of the known conditions which favour the disease. Surgical procedures may also do much for the hypertrophic cases.

Treatment.—The line of internal treatment is determined by the general health. Careful attention to the digestion is of primary importance in most cases; the diet should be regulated; alcohol is generally better avoided entirely, unless in very small quantities in atonic dyspepsia at the beginning of a meal; beer, stout, and

effervescing and acid wines are generally particularly injurious; fermentable articles of diet should be avoided, such as sweets, pastry, rich gravies, thick soups, etc., and generally plainly cooked, easily digestible food should be chosen; tea and coffee are often, but not necessarily, injurious, and those kinds of cocoa in which the superfluous fat is removed, are preferable to the cruder or starchy kinds. Cold winds, or any great alternations of temperature, should also be guarded against. Medicinally, alkalies, or where there is irritative dyspepsia, bismuth and bitter tonics, *e.g.*, gentian, cascarilla, nux vomica (Mixtures, F. 8—12), etc., are the kinds of drugs suitable to most cases, but in atony of the stomach, the mineral acids often agree better; if there is a gouty tendency, potash is preferable to soda, and Bulkley speaks highly of acetate of potash in dyspepsia with acidity. Constipation must always be combated by such treatment as is recommended under eczema for that condition. In women, the uterine and catamenial functions should be inquired into; but not infrequently, these troubles are secondary to defects in the general health, and subside when these are rectified. On the other hand, the dyspepsia, debility, etc., may be due to the exhausting effects of leucorrhœa, menorrhagia, etc. Direct remedies are seldom of much use; arsenic is seldom beneficial, and generally injurious, except in drop doses for drunkard's catarrh of the stomach; ergot is said sometimes to be of service in contracting the dilated vessels, but as these are veins this is very doubtful. Unna claims that ichthyol, in doses of 3 to 5 minims, made into a pill and taken three times a day, does all that is required. It certainly suits some cases, but aggravates others, and, in my opinion, a carefully planned treatment founded on general principles is the most reliable.

Local treatment is of great service in this, as well as the other form of acne. The papules and pustules may be treated with sulphur compounds, as in A. vulgaris, the unguent. sulph. hypochloridi (Ointments, F. 19) being one of the best, or in obstinate cases Vlemingkx's solution, 1 part to 4 or 5 of water (Parasiticides, F. 11), applied at night, and in the daytime more soothing applications, such as calamine and bismuth lotion (Lotions, F. 41, 42). For the permanently dilated and varicose vessels, splitting them open for their whole length with a fine knife is a very good plan, and some apply a fine point of nitrate of silver afterwards; but this is not necessary, and more likely to leave scars unless

the vessels are very small. Multiple scarification, as Squire recommends, is not so effectual as dealing with each vessel separately; Unna recommends his Mikrobrenner, a small Paquelin cautery, of course only applying it very superficially; but the best plan of all, and leaving least mark, is electrolysis, in the same way that Hardaway recommends for the removal of superfluous hairs, but a weaker current must be used—three to five cells is sufficient. Of course the cause must be removed, or other vessels will enlarge.

Tuberculated noses may be trimmed with a knife down to their normal size; cicatrisation takes place readily, and the result is usually very satisfactory. Large tumours must be removed by the usual surgical methods. Veiel recommends cataplasms and painting once daily, with a 2 per cent. alcoholic solution of pyrogallic acid for the tuberculo-pustular thickened noses, or the application of emplastrum cinereum. Few English patients will submit to these applications, as the method is tedious and increases the disfigurement for the time being.

ACNE VARIOLIFORMIS.

Synonyms.—Acne frontalis; Acne atrophica (Bulkley and Bazin); Acne necrotica (C. Boeck); Acne rodens (Vidal and Leloir).

Definition.—A grouped pustular eruption, which appears chiefly on the upper part of the face or on the scalp, and leaves scars like those of small-pox.

The term "acné varioliforme" was originally given by Bazin to molluscum contagiosum, but acne varioliformis was adopted by Hebra and his followers for the somewhat rare eruption under consideration, in which sense it is now always employed.

Symptoms.—It occurs usually in the centre of the forehead, on the sides of the temples, at the margin of the hairy scalp, and on the scalp itself, both at the temples and the vertex; it is seen less frequently, on the sides and other parts of the face and neck. In two of my cases, it was also on the chest; in Boeck's case, it was on the back. The face, scalp, or both were affected as well in all these; but in Bronson's case the face and scalp were free, while it was abundant on the extensor aspect of all the limbs The diagnosis in this case is not quite conclusive.

It consists of indolent, grouped, red, flat papules or nodules,

about the size of a small split pea, rather firm at first, but later suppurating at the apex, and drying up into small, flat, closely adherent scabs, which press into the skin, and when they fall off, leave a pit about one-eighth of an inch in diameter (occasionally much larger), at first stained dark red, passing into a brownish hue, and subsequently blanching and looking like a small-pox scar; hence the name "varioliformis."

The earliest lesion is a convex papule, with minute pin's-point, hard centre, apparently hornified epithelium. When a little larger, a ring of pus, and outside this a narrow red ring, surrounds the horny-looking centre, which has also *pari passu* enlarged until it assumes the appearance of a distinct scab. The eruption is painless, but itches slightly at times. It is very chronic, and tends to recur sooner or later, some of my cases having a history of ten years' intermittent duration, and two, nearly thirty years.

Etiology.—It occurs both in men and women generally over thirty, but I have seen it under twenty-five years of age, and one case was said to date from vaccination in infancy. Its cause is doubtful; Tilbury Fox always considered it to be of syphilitic origin, occurring late in the tertiary period, with which view I am now able to agree only so far as I think syphilis is a predisposing cause. In eighteen cases of which I have record, eight were males, ten females; three had had syphilis, three gonorrhœa, and twelve neither. Their ages varied from twenty-one to seventy.

Pathology.—The first step (the cause of which is unknown) appears to be a minute horny plug, which sets up inflammation and necrotic destruction, and separation of the portion of the skin affected.

Anatomy.—Fordyce* examined early and late papules from Bronson's case, where the limbs only were affected; and according to his observations, "the lesion begins as a deep-seated, small-cell infiltration about the coil glands, which are situated beneath the hair follicles. In the beginning, several independent foci of inflammation are present, which subsequently coalesce, producing a generalised infiltration of the derma, with a tendency to central degeneration. As the infiltration approaches the surface, it penetrates and disintegrates the overlying epidermis, separating it from the adjacent tissue." The central dry necrotic mass

* Bronson and Fordyce, "Notes on Certain Pustular Diseases attended with Atrophy," *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. ix. (1891), p. 121, with illustrations clinical and pathological.

which results is made up of the whole thickness of the dermal tissues. Boeck,* from his examination of the slough only, found a large staphylococcus and a small streptococcus, and thinks the hair follicle is the starting-point; but Pick † could find no such connection. Leloir and Vidal‡ examined two advanced lesions, and conclude that it is a destructive perifolliculitis, a vestige of the follicle still remaining. Grunewald § examined the lesions of what was thought on the authority of Köbner and Lassar to be a universal A. varioliformis; but as he found the changes were almost limited to the epidermis and papillæ, the floor of the cicatrix not going below the rete, it must be some other disease, as it is obvious even clinically, that the lesions of A. varioliformis involve the whole derma, and the scars are permanent, which those of Grunewald's case would not be.

Diagnosis.—The characteristic features of this eruption are, that it leaves varioliform scars, occurs on the temples and forehead, and goes back into the hairy scalp. The last point will distinguish it from all other forms of *acne*, which do not affect the scalp.

It is somewhat like the *corymbose papular syphilide*, but this is always a secondary eruption, and widely spread over the rest of the body. A syphilide like A. varioliformis belongs to the late tertiary period, and is rarely anywhere except on the head and neck.

Prognosis.—It is almost sure to recur sooner or later.

Treatment.—In my experience, the majority of cases improve under iodide of potassium, but a few do better with cod-liver oil and iron; from fifteen to twenty minims of the perchloride should be given three times a day. Prolonged treatment is required, and if evidence of a syphilitic taint be obtained, a mild mercurial course, alternating with the iodide, should be continued for at least a year. In one case, after seven years' duration, the persistent use of iodide of potassium and iron apparently produced a cure, the disease not having recurred during the last six years. Locally, mild mercurial applications, such as the diluted nitrate or ammoniated mercury ointment, should be frequently smeared on. Probably, if the horny centre of the early papule were removed and iodoform or other antiseptic applied, abortion of

* Cæsar Boeck, "Ueber Acne frontalis s. necrotica," *Archiv f. Derm. u. Syph.*, vol. xxi. (1889), p. 37, with photograph.

† Pick, *ibid.*, p. 537, with chromo-lithograph of well-marked case.

‡ Vidal and Leloir, Part I., p. 23.

§ Grunewald's case, *Monatsh. f. prak. Derm.*, vol. iv. (1885), p. 81.

the lesion would be induced, and so the scar avoided. Most of the lesions are in an advanced stage before the patient applies for relief.

ADENOMA SEBACEUM.*

Synonyms.—Végétations vasculaires (Rayer); Nævi vasculaires et papillaires (Vidal).

Definition.—Neoplastic papules on the face, of congenital origin, but of later development.

Rayer and Addison and Gull related the first cases, but it was not generally identified until the above designation was given by Balzer, who was the first to redescribe the affection without knowing of the previous cases. Vidal, Hallopeau, Pringle (two cases), S. Mackenzie, Caspary, myself (four cases), and others have met with instances, and the affection is probably not so rare as it is generally considered to be, as the patients are often epileptics, and pass unrecognised into the hands of the neurologist, rather than into those of the dermatologist.

The disease is practically confined to the face, occupying in the main the position of acne rosacea, *i.e.*, the middle two-thirds. It is most abundant along the sides of the nose and the naso-labial folds, where it is semi-confluent in most cases; it is least on the forehead, where the lesions are scattered sparsely and without any arrangement, and some of the largest papules are often found here. The chin and sides of the cheeks occupy an intermediate position as far as the number of the papules is concerned. Their distribution is remarkably symmetrical as a rule, but one of my cases was strictly unilateral.

The lesions are roundish, convex papules, and most of them are from a millet to a hemp seed in size, but the extremes are a pin's point to a split pea. The majority of the lesions are of a bright

* *Literature.*—Rayer's Treatise, second edition, Willis' Trans., p. 996, cases clxxiv. and clxxv.; and *Atlas*, plate xx., fig. 1. Addison and Gull on Vitiligoidea, *Guy's Hospital Reports*, series ii., vol. vii. (1850), p. 267, and No. 262 model, Guy's Museum, labelled "Lichen." Pringle, *Brit. Jour. Derm.*, vol. iii. (1891), p. 1, a good *résumé* of the subject, with coloured plate, gives all the French cases. Caspary, *Archiv f. Derm. u. Syph.*, vol. xxiii. (1891), p. 371, with coloured plate. Internat. Derm. Cong., Vienna, 1892,—seven new cases by myself. There are several models in the St. Louis Museum.

crimson, from minute telangiectic vessels on and round them, but they may be quite colourless and slightly translucent, like little wax nodules, while on the forehead I have seen them of a brownish-red tint. They do not all pale on pressure, and the telangiectases vary much in extent, sometimes being almost absent, at others very abundant, in tufts and stars, and imparting a uniform red colour. One of my cases corresponded to the last description, and Vidal's designation for the disease shows what a striking feature it was in his case. In my unilateral case, there was very little.

A few of the lesions may be present at birth, or appear in very early life, and the others either appear gradually, or at some period such as puberty, and take on marked activity as to numbers; but individually they do not much increase in size beyond the limits stated. Subsequently the majority show very little change, though a certain number may undergo involution, leaving faint atrophic scars, which may disappear altogether in time. A large proportion show other signs of a defective skin. Numerous small fibromata, such as are common in old people, are scattered about, and the larger form may occur on the body. The texture of the skin is coarse, and groups of hair follicles on the back have round them an infiltration or fibrous thickening, so that they form colourless hemp-seed-sized papules, or coalesce into flat, fibrous-looking patches, dotted over with large comedones. Warts, true nævi, and pigmentation are also to be met with. One of my cases had a flat patch, such as has been described, just above the left iliac crest; and one of Pringle's cases showed the same condition, in almost the same spot. Another of my cases showed the same kind of patch on the right side.

Etiology.—The disease is of congenital origin, and all the marked cases show intellectual inferiority, a large proportion being chronic epileptics or imbeciles, and it is probably not uncommon in asylums. Slight developments may occur apart from such conditions. One of my cases was an intelligent lady, æt. forty-eight, and another was a boy of eleven, above the intellectual average of his age and class. This boy had only a few papules, which had slowly developed for two years. The lady had had one papule all her life, while the others had gradually developed; so that the slight cases are of later development than the others. Nearly all cases occur among the poor. Other defects of the skin are usually present

especially fibromata seated at the hair follicles; pigmentation, warts, and true nævi are also frequent.

Diagnosis.—The most striking features are the occurrence of neoplastic, small, convex, telangiectic, deep-red nodules, semi-confluent as a rule, along the naso-labial folds and the rest discrete, but for the most part limited to the middle two-thirds of the face. They commence early in life, increase slowly in number and size, and there are generally other congenital defects of mind and body. The diseases mostly resembling it are hidradenoma, colloid milium, and acne rosacea.

Hidradenoma is also congenital, but the lesions tend to form irregular groups on the face, and the forehead is a usual situation, while the trunk may also be affected. The lesions are not telangiectic, and intellectual defects are the usual concomitants.

Colloid milium occupies the frontal and orbital regions. In adenoma sebaceum, the lower half of the face is chiefly affected. Colloid milium nodules are not very numerous, and of a transparent yellow appearance. Adenoma nodules are very numerous, usually some shade of red, but occasionally white, and less translucent than those of colloid. Telangiectases are not a feature of the colloid, while they nearly always are a very marked feature of the adenoma affection. The two diseases resemble each other in their both attacking the face, in both being probably of embryonic origin, and in their slow evolution and stationary behaviour after development. Indeed, it would not be surprising if both these affections turn out to be slightly different clinical expressions of the same pathological process.

From *acne rosacea* the history of early development, the slow evolution of adenoma, the absence of tendency to suppurate, and the independence of digestive disturbance and stationary behaviour, would be sufficient.

The idea of disseminated nodular lupus could only arise in the most telangiectic cases of adenoma. Disseminated discrete nodules of lupus are as rare as adenoma sebaceum; the brownish-red colour of lupus is not in any way due to telangiectic vessels; its nodules are not very numerous, not limited to any part of the face, and may even come elsewhere. Some of them grow to a much larger size than the largest adenoma nodule, and there is a decided tendency to undergo involution in the centre while spreading peripherally. It produces also decided scars. Darier showed a case

to the French Dermatological Society of "vascular and warty nævi," which was only distinguishable from adenoma sebaceum by microscopical examination, which showed vascular, but no sebaceous changes.

Pathology.—The disease is presumably an error of development in the shape of a congenital overgrowth of an adenomatous character, developing from embryonic remnants in the skin, but in my experience affecting all the appendages, and therefore really a pilo-sebaceous hidradenoma.

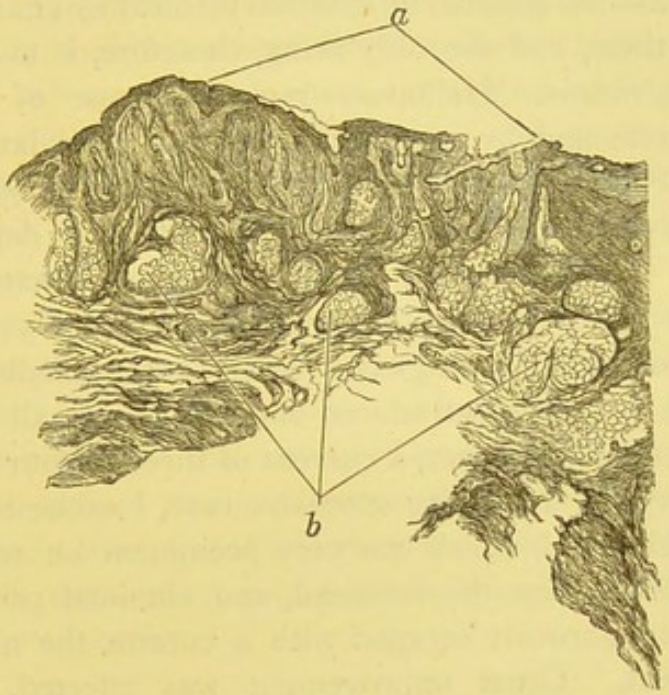

Fig. 56.—Adenoma sebaceum from cheek. × 2-in. Powell, 2-in. ocul.

a, rudimentary hair follicles; *b*, sebaceous glands, large and numerous. Sweat coils are also present in abundance, but do not show with so low a power.

Anatomy.—This has been investigated by Balzer, Pringle, Caspary, and myself. Balzar found adenoid changes in one case in the sebaceous glands only; in the other, both in the sweat and sebaceous glands, he also found numerous small cysts. Pringle found adenoid changes in the sebaceous glands only, and no cysts. I examined portions of skin from the cheek, forehead, and the fibrous lesions of the back. In the cheek lesions (fig. 56), there was not the inter-papillary growth Pringle found. The corium was much thickened, and the most conspicuous feature was the enormous number and size of the sebaceous glands, both single and compound; but the upper half of the corium was also studded with rudimentary hair follicles, while there was also an unusually large number of sweat coils in the deeper portion, so that there was increased development of all the appendages of the skin situated at different levels. The papillary vessels were conspicuous, and there was moderate increase of the connective

tissue. In the single large lesion from the forehead, which clinically looked so different, the most striking distinction was the replacement of the enormous numbers of the hair follicles and sebaceous glands by fibrous tissue, of which the greater portion of the tumour consisted, with fragments of hairs and glands imbedded in it. The lesions of the back were seated at the hair follicles, round which dense fibrous tissue was developed in considerable quantity, the lesions being in short follicular fibromata.

Prognosis.—The tendency is for the lesions to slowly increase in number, but not much in size. Involution has occurred in some lesions, but permanency is the most constant feature.

Treatment.—No internal or external medicament has the slightest effect upon them, and the only thing, therefore, is to remove them by surgical means. Hallopeau removed some of the growths by the curette and by scarification, but a year later some had recurred. Pringle tried to scoop or bore out some of the nodules, but not very satisfactorily, on account of their depth. In the case of the lady, where the number of papules was not large, I successfully removed them by electrolysis, exactly in the same way as in occluding telangiectic vessels; the needle attached to the negative pole was introduced once for the small nodules, and several times for the larger, a current of three or four milliampères being employed. In a very extensive case, I excised a portion of the naso-labial fold, which was very prominent on each side, and also large lesions on the forehead, and obtained primary union; the rest was vigorously scraped with a curette, the nodules being very resistent. Great improvement was effected, but several operations would have been necessary for anything like a complete removal of all the growths.

Congenital Fibro-sebaceous Disease. In September 1879, I met with a case of congenital lesions on the head and face of an infant,* æt. six weeks, which was in patches, with an area of several square inches on the right side of the face in front of the ear; a large zone in a corresponding position on the left side; a very large one on the neck in front, reaching to the chin and chest, and sending processes up to each ear; a large one on the occiput, and another above the left ear. The patches were a pale reddish-yellow, but redder at times; the surface was finely granular, consisting of closely aggregated, pale yellow, pin's-point papules, the whole patch slightly raised above the surface, and the scalp patches were quite

* *Clin. Soc. Trans.*, vol. xiii. (1880), p. 40, with coloured plate.

hairless; the sharply defined border was more raised than the rest, the papules were more distinct, and there were many comedones on the borders, and a few scattered over the surface. The mother said that the patches were present at birth, but more raised than when I saw it, and they were also redder and rougher than above described. The child was frequently vomiting, and some members of the special committee appointed to examine the case were inclined to believe that there was congenital syphilis. The child continued to vomit, and wasted and died when three months old. A portion of skin from the scalp was examined microscopically, and there was found a fibrous hypertrophy from intra-uterine inflammation of unknown origin, leading to atrophy of the hair follicles and sweat glands, and separation of the lobes of the sebaceous glands. The case stood alone until February 1890, when my colleague, Bilton Pollard, sent me another case for diagnosis, a girl, æt. three months, with a single comparatively small patch, 1½ by ½ inch, exactly corresponding in appearance and position with a portion of the patch in front of the left ear of the first child. There was no suspicion of congenital syphilis in this case. The exact nature and origin of the disease cannot yet be determined, and the cases are simply recorded here in the hope of bringing to light other similar cases. Pollard's case occupying only a small area, he scraped it away with a sharp spoon.

C. DISEASES OF THE HAIR FOLLICLES.[*]

Diseases of the hair are dependent upon pathological changes in the follicle, similar to those of other parts of the skin. They comprise "inflammation" (sycosis or folliculitis), "trophic" changes, leading to "overgrowth" (hirsuties), or to "atrophy," producing loss of elasticity (fragilitas, trichorrhexis nodosa, moniliform hair, etc.), to "colour" defects (canities, etc.), or the damage is so severe as to lead to "falling out" of the hair (alopecia in various forms). Then, as pathological accidents, so to speak, there are "concretions" on the hair (lepothrix, piedra), and "vegetable parasites" (favus, tinea tricophytina). These last are treated of in the section on Parasitic Diseases.

[*] G. T. Jackson, *Diseases of the Hair and Scalp* (New York: 1889).

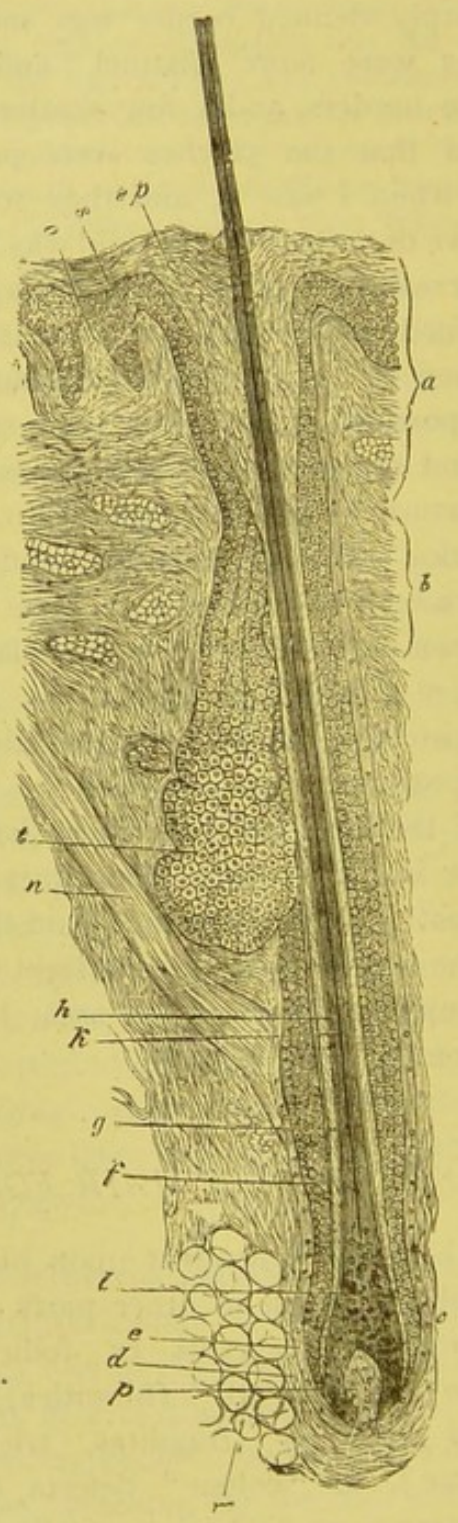

Fig. 57.—Normal Hair of the Beard (Biesiadecki).

b, neck of the follicle; *a*, excretory duct; *c*, dilatation of the hair follicle; *d*, external sheath of the hair follicle; *e*, internal sheath of the hair follicle; *p*, papilla; *f*, external root sheath; *g*, internal root sheath; *h*, cortical substance; *k*, medullary substance of the hair shaft; *l*, root of the hair; *n*, arrector pili; *t*, sebaceous gland; *o*, papillæ of the skin; *s*, rete mucosum; *ep*, epidermis, which is continued into the excretory duct of the hair follicle.

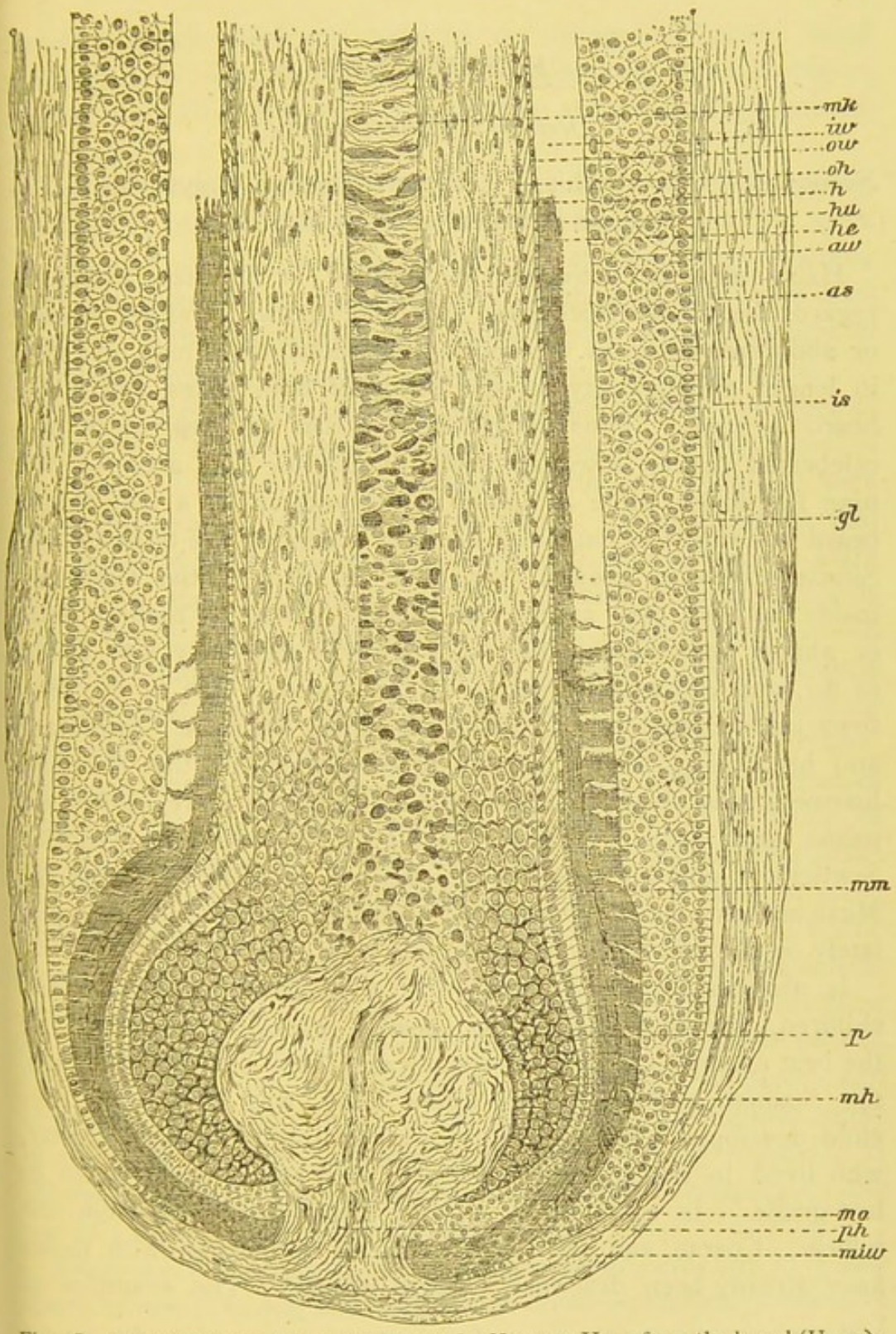

Fig. 58.—Longitudinal section of the root of a NORMAL HAIR from the beard (Unna).

as, external root sheath of the follicle; *is*, internal sheath of the follicle; *gl*, vitreous membrane of the follicle; *aw*, external root sheath (prickle layer of the follicle); *iw*, internal root sheath; *he*, sheath of Henle; *hu*, sheath of Huxley; *ow*, cuticle of the root sheath; *oh*, cuticle of the hair; *h*, cortex of the hair; *mk*, medulla of the hair; *p*, papilla; *miw*, *mo*, *mh*, *mm*, matrices of *iw*, *ow*, *oh*, *h*, *mk*; *ph*, neck of the papilla.

HIRSUTIES.*

Deriv.—*Hirsutus*, hairy.

Synonyms.—Hypertrichiasis; Hypertrichosis; Polytrichia; Trichauxis; Hypertrophy of the hair.

Hairs may be increased in number or in size, either as regards length or thickness, and may grow in either normal or abnormal positions. In normal positions, there may be excess in length and quantity on the heads of both sexes, and in the beard in man. Thus Beigel relates that in Negreni, a once celebrated dancer, after an acute illness, the hair grew to over nine feet long; while at Eidam is the portrait of a man whose beard was nine feet long, and Leonard mentions one of seven feet. Similar excessive growth may also be seen in the eyebrows, inside the nose, ears, axillæ, and pubes. Then the natural down or almost imperceptible hair may grow excessively into a sort of fur, and universal hirsuties be produced. One of the most remarkable instances was in the oft-quoted Burmese Shwe-Maon and his family, where, through three generations, this excessive hairiness was observed absolutely all over the body, except the palms and soles. There was also the Russian Andrian Jewtichjew and his son Feodor, figured in Ziemssen, and the Mexican hairy family of Ambras. Another Burmese instance was lately on show in this country, a male child called Krao.

In abnormal positions, we see it occasionally in women and children, who have moustaches, beards, whiskers, etc. Two of the best examples of bearded women are those of Julia Pastrana, the Spanish dancer, whose whole body was also hairy (her child developed a similar condition), and that of Barbara Urster, who lived in the sixteenth century, and had a beard down to her girdle. In some cases, two or three hairs grow from one follicle. Coarse, and even long hairs in connection with moles have already been described (**Nævus pilosus**). The examples of

* *Literature.*—Wilson's *Lectures on Dermatology*, 1878; Beigel, *On the Human Hair* (Renshaw: 1869), who records fully most of the above cases and many others, with woodcuts; Leonard (Detroit: 1880). See portraits by Beigel, also in Hebra's *Atlas*, Lief. ix., Taf. 7 and 8; Memoir by Bartel in *Zeitschrift für Ethnologie*, 1879; Geyl, *Hypertrichose* (Hamburg: 1880).

hirsuties given here are selected on account of their being specially developed; but many cases approaching them in degree as well as in kind are to be found in the authors already quoted, and elsewhere.

The hair does not always grow in a normal direction. Thus in Martinez del Salper the direction of the hair on the back was upward. This occurs sometimes in the eyelashes, exciting much irritation in the eye (**trichiasis**), in the eyebrows, and elsewhere. In the extreme hirsute cases, dental defects, usually in the form of deficiency, seldom of excess, are present as a rule.

Etiology.—Racial peculiarities account for a certain number of cases. Thus the Burmese already mentioned, and the Ainos of the Island of Yesso are noted examples, though there has been gross exaggeration with regard to them. Unna suggests that the excess is really the result of defective development. Dark people are more liable to it than fair. Family predisposition is also a factor. Some cases are congenital, some occur later—in childhood, puberty, or in the decline of life. The association of congenital lumbar hypertrichosis, club-foot, and perforating ulcer with concealed spina bifida was first pointed out by Virchow, and since by von Recklinghausen, Sutton,* and others. Hirsuties occurs in mannish women, and also in disorder or irritation of the genital organs, or during the abeyance of sexual functions; and is often seen in insane women. Again, it is seen in some women at puberty, during pregnancy, in amenorrhœa, or in sterile women; but in by far the majority, it occurs at the climacteric period and onwards. It is by no means necessarily indicative of bodily vigour, even in men. Many cases of excessive growth in normal positions have come on after severe illnesses, and although it is common to see moderate excess in strong men, some of the most notable instances have been the very reverse. It follows local irritation sometimes, coarse hairs developing on the site of a blister, after using sulphur ointment, etc.

Prognosis.—As a rule, the growth is permanent, but in a few cases, where it is due to a temporary cause—pregnancy, defective health, poulticing, etc.—it has fallen off, or become lanugo-like again.

Treatment.—Means for the permanent removal of superfluous

* Sutton on "Spina Bifida Occulta, and its Relation to Ulcus Perforans and Pes Varus," *Lancet*, July 2nd, 1887, p. 5.

hairs can only be adopted with success when the increase or development is moderate, such as is present in many women on the chin, etc.

The only effectual treatment is that by electrolysis, first used by Michel of St. Louis, and Benson of Dublin (for trichiasis), and afterwards by Hardaway, Piffard, and other American physicians. From extensive experience, I can speak most highly of this treatment, though it is unfortunately very tedious, both for patient and operator.

The mode of procedure is as follows:—The patient being placed opposite a good light, with the head resting in a comfortable position, and the superfluous hair having been cut to about one-eighth of an inch long, a fine needle, connected by means of a suitable holder with the *negative* pole of a galvanic battery, is introduced down to the bottom of the hair follicle by keeping the needle parallel with the direction of the hair. The circuit is then completed by the patient grasping the positive pole tightly. Bubbles of froth are immediately perceived, and after a few seconds, the patient releases her hold of the positive pole. The needle is withdrawn, and an attempt is made to withdraw the hair by forceps, but without any forcible traction. If the hair is not perfectly loose, the needle must be introduced again. About six to ten cells of almost any twenty-cell battery are usually sufficient, but the number will vary according to the strength of the battery. It is advisable to have an arrangement for easily altering the number of cells, and a galvanometer with a scale to measure the strength of the current, which varies greatly, even at the same sitting: from three to five milliampères are sufficient. If the needle is of steel, it should be as fine as possible, mine are No. 16, which I prefer either to a gold needle with iridium tip, or to the irido-platinum one recommended by Hardaway. These soft metal needles are supposed to feel their way, so to speak, into the follicle, while the steel ones, being sharp and rigid, easily pierce and go outside of it. The objection to the steel needle is, I think, more theoretical than practical. G. H. Fox recommends the finest jeweller's broach, ground so that it has a smooth bulbous point. From twenty to fifty hairs may be removed at a sitting, depending upon the skill of the operator and upon the hairs being coarse or fine. A lens may be required to find the orifice of the follicle, and it is convenient to have a watchmaker's lens mounted

in a spectacle frame. The best possible electrode for a patient to grasp is a carbon cylinder, covered with chamois leather wet with salt and water, and mounted on a handle. I have also found it advantageous to have a small pair of forceps attached to the handle of the needle holder, as it saves time and prevents the forceps being dropped or mislaid (fig. 59). It is less painful to the patient if she is not holding the positive pole when the needle is introduced or withdrawn, as otherwise a sharp prick is felt. The operation is decidedly uncomfortable, but few patients consider it seriously painful, and none unbearable. In no case should the needle be attached to the positive pole. It is less effectual, and with steel needles blackens the skin. In very sensitive patients, I have had rubbed in, just before the operation, a 20 per cent. ointment of cocaine and lanolin, and I have also injected cocaine hypodermically, but the after-pain is only slightly mitigated by

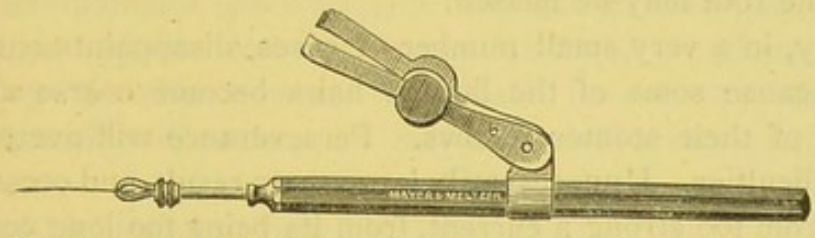

Fig. 59.—Needle holder, with forceps attached, for removing hairs by electrolysis. In use, the forceps should be turned backwards instead of forwards, as in the woodcut, otherwise the patient may get an accidental scratch with the needle.

external use, and hypodermic injections are sometimes dangerous. After the operation, a small red papule is left at the site of removal, which soon flattens down to a red spot; and this, after a time, whitens down to a minute scar, only perceptible when carefully looked for. Hairs that are very close together should be removed at separate sittings, and it is usually advisable to wait a week between each time. Bathing the part operated on with warm water relieves the discomfort, and calamine lotion helps to conceal the redness, etc., until it has had time to subside. As a rule, the coarser hairs are alone fitted for operation; for lanugo growth the remedy is worse than the disease. The process is very successful for small hairy moles, but a stronger current is necessary to completely destroy the growth.

Owing to the theoretical simplicity of the operation, it has largely been undertaken by ignorant and unqualified persons, and

their unskilful manipulations have brought the procedure into some disrepute, both as regards efficiency and the resulting disfigurement. A good deal of practice is required to get the best results obtainable, but, granted the necessary skill, the operation is thoroughly satisfactory as regards the permanency of the removal, while the scars left ought to be so small as to be quite insignificant when sufficient time has elapsed for them to be quite white.

It should be explained to the patient that a certain number, varying with the coarseness, position of the growth, and the skill of the operator, will require a second operation, owing to the hair papilla or its root sheaths being imperfectly destroyed. This is unavoidable to some extent, as the aim is, not to use a stronger current, nor for a longer time, than is absolutely necessary; moreover, the direction of the root in some positions, *e.g.*, in the neck, is not always in a line with the external portion of the hair, and so the root may be missed.

Finally, in a very small number of cases, disappointment is met with, because some of the lanugo hairs become coarse after the removal of their stouter fellows. Perseverance will overcome all these difficulties. Unnecessarily large scars result, and occasionally keloid, from too strong a current, from its being too long continued in each follicle, from too coarse a needle being employed, from removing hairs which grow close together at one sitting, from the sittings being repeated at too short intervals, or when epilation has been practised by the patients for a long time, so that they grow erratically as regards direction of the root shaft, and the needle has to be introduced several times or from idiosyncrasy.

The alternatives to this operation are epilation, shaving, and depilatories. Epilation with tweezers makes the hair grow coarser and longer. Shaving, having to be a daily performance, is viewed by most patients with great repugnance; and depilatories, while they are not more effectual than shaving, are dangerous applications, as they are liable to excite considerable irritation if the skin is sensitive; therefore I never employ or sanction them. Duhring recommends barii sulphidi ʒij, pulv. zinci oxidi, pulv. amyli āā ʒiij. Mix. Make into a thin paste with water, and apply on the hairy part for ten to fifteen minutes; when heat of the skin is felt, clean off the paste and apply a soothing unguent, and powder the face with starch, to conceal the redness. Sulphide of sodium may be substituted for the barium salt. It must be repeated every few

days. Many others are employed, but the patient should always be cautioned of the risk she runs in using them. Where the operation is impracticable on account of the enormous number of the hairs or the expense of it being too great for the patient's means, I recommend shaving as the safest and easiest method, and as women are inexpert and have a repugnance to an ordinary razor, I have found an excellent substitute in Auguste Bain's Rasoir Mécanique, the "Star" Razor, or similar contrivances; they do not look like a razor, and the patient cannot cut herself, unless she tries to do so.

ATROPHY OF THE HAIR.

Defective nutrition of the hair may give rise to various structural alterations, which may be symptomatic or idiopathic.

The symptomatic cases are generally due to some constitutional disease, as syphilis, diabetes, fevers, phthisis, or other disorders damaging the vital powers. The hairs become dry and lustreless, of smaller diameter, and may split and break up in various ways.

Idiopathic atrophy includes those cases in which no general disorders to account for it can be traced.

Various affections come under this category, as follows.

The hair may be simply so brittle that it breaks off with the slightest strain, such as brushing and combing; this is one form of **fragilitas crinium**; or the hair may split in various ways. The most common event is for it to split at the end into three or four segments, which may extend some distance down the shaft. It generally occurs in long uncut hair, and therefore on the scalp hair in women, but it is also frequent in long-bearded men. Kaposi explains it by supposing that, owing to the length of the end from the root, sufficient nutriment does not reach so far along the shaft, and the hair becomes brittle and splits up. The obvious remedy for such a state of things is to clip the hair frequently, but this is not the whole story, for sometimes, as Duhring pointed out, and as I have myself seen on the beard, the splitting seems to take place from the root, and looks as if there were several hairs springing from one bulb (fig. 60); the cause is unknown, beyond its being a trophic defect. It is attended sometimes with a pustular folliculitis of the affected hairs, but whether as a cause

or consequence is not certain. Marked cases of this kind are recorded by Rushton Parker* of Kendal, and by Duhring.† In one there was severe acne vulgaris, but not in the other. There was also associated trichorrhexis in Parker's case.

In another form the cuticle only is affected, and splits away,

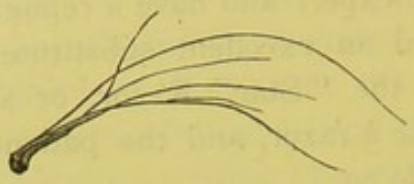

Fig. 60.—Hair of beard split down to the follicle. × 4.

giving the appearance of the hair being frayed out; it may be only here and there, or all along the shaft.

A more peculiar form than any of the above is—

Trichorrhexis nodosa (Kaposi). *Synonyms.*—Trichoclasis (Wilson); Trichoptilosis (Devergie); Swelling and bursting of the hair (Beigel).

It may be defined as a green stick fracture of the hair shaft, and was first described by Wilson (1849), and then independently by Beigel (1855), Wilkes (1857), Kaposi, etc.

It chiefly affects men, attacking the whiskers, beard, or moustache; more rarely the eyebrows, and hairs of the axillæ, pubes, or scalp. I have once seen it on the front of the scalp in a lady who was apparently well, but had lived a good deal in hot climates. It began in a patch, the size of a sixpence, on the left temple, and spread across, but did not quite reach the marginal hair on the forehead. Dr. Pratt of Leicester also sent me hairs from the scalp of a lady æt. twenty-seven, in whom the disease had existed for six years without apparent cause. To the naked eye, there appears to be from one to six or seven whitish spots, or small bead-like swellings, situated irregularly along the hair shaft, which may, at first sight, be mistaken for nits, but these are always on one side of the hair. The hair breaks off at these nodes with very slight traction, leaving half of it still attached to the growing part. Under the microscope, the cortex is seen to be split up into its constituent fibres, the medulla alone maintaining its continuity; and the whole has been aptly compared to two short bristled

* *Brit. Med. Jour.*, December 15th, 1888, with engraving.

† *Amer. Jour. Med. Scien.*, vol. ii. (1878), p. 88.

brushes, stuck end to end (fig. 61). Pigment granules are to be seen between the fibres, and have been mistaken for fungous elements, of which, however, there is no real evidence. Beigel attributed this appearance to the formation of gas within the hair, which distended it to a bursting point; but the simple explanation of Wilson is the more probable, viz., that owing to damaged nutrition the hair becomes brittle, but instead of breaking completely across at once, breaks, like a tough stick, first at the cortex. Moreover, there is not always a node at the point of fracture, the shaft there being sometimes of less than the normal diameter.

Paul Raymond* states that trichorrhexis nodosa is very common on the labia majora of women, and ascribes it to a diplococcus rather larger than staphylococcus pyogenes, and which behaves quite differently under cultivation. This organism, he thinks, erodes the cortex of the hair, and so weakens the structure and facilitates fracture. It is not nearly so common on the male

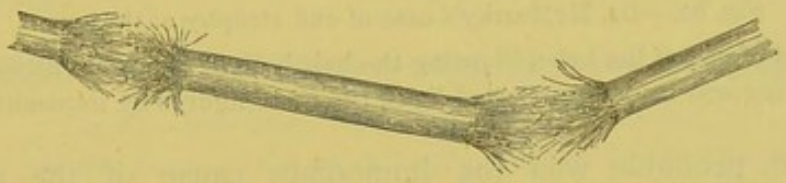

Fig. 61.—Trichorrhexis nodosa from scalp of lady æt. thirty. Obj. $\frac{4}{10}$, ocul. 2 in.

genitalia, though both here and on the beard it is probably not so rare as is generally supposed. He found a similar but smaller diplococcus on beard hairs in two cases; these cultivated small at first, but a few days later he found cocci of the same size as those from the female genitalia. He considers that though they are the proximate cause of the affection, they are not special to it, and are very common. He thinks the disease is communicable by contagion, and thus explains McCall Anderson's cases where it seemed to be hereditary.

The treatment is not very satisfactory. Shaving is recommended, and has, when long continued, sometimes been effectual; as a rule, however, the hair grows again as brittle as ever. Change of climate has been successful, and in all cases efforts should be made to discover and remedy any defect of the general health. Faradising the part might be tried.

If P. Raymond's view of its parasitic origin is correct, careful removal of all affected hairs, if on the head, and sponging the rest

* *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 568.

with antiseptics, such as 1 in 40 carbolic lotion, would be the treatment indicated for the head, but it is strange that shaving is not more uniformly successful when the beard is affected.

End Atrophy.* W. McMurray of Sydney sent me some hairs with the condition as figured, the ends showing thinning and fracture. Some of the root ends were infiltrated with air, which

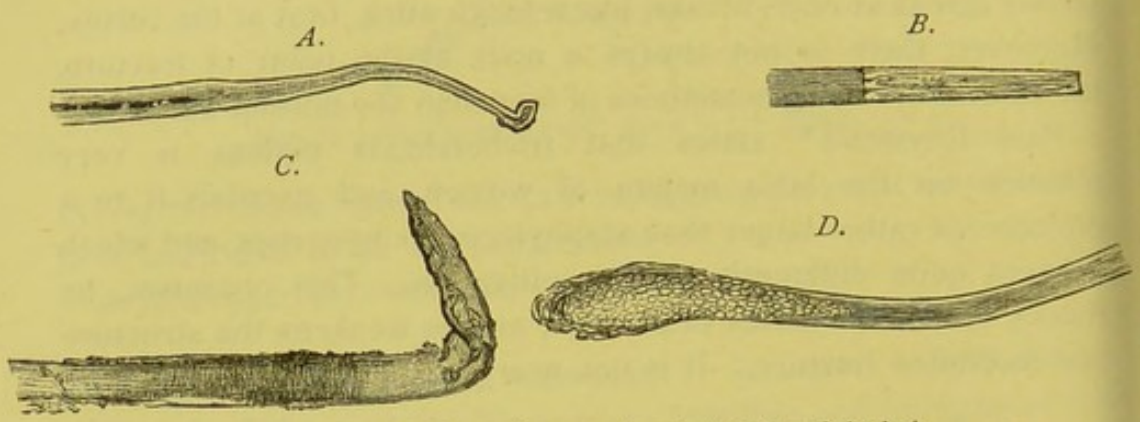

Fig. 62.—Dr. McMurray's case of end atrophy of the hair.

D. Root end of one of the hairs, showing the hair bulb permeated with air bubbles. This drawing was made by reflected light, the other figures by transmitted light.

it seemed probable was the immediate cause of the atrophy. McMurray, in his account of the case, stated that the distal end appeared of a lighter shade and bulbous; in that case, it would appear that the atrophic ends I examined had broken off on the proximal side of the bulb.

Monilethrix. (*Synonym.*—Moniliform or beaded hair.) This is an extremely rarely recognised condition, of which the first description was published by Walter Smith † of Dublin, and McCall Anderson. Smith describes two cases of his own, and one of Liveing's; since then Lesser, ‡ Payne, § Luce, ‖ Abraham,

* *Australian Medical Gazette*, July 1892, p. 280.

† "A Rare Nodose Condition of the Hair," *Brit. Med. Jour.*, vol. ii. (1879), p. 291, and vol. i. (1880), p. 654.

‡ "Ueber Ringelhaare," *Viertelj. f. Derm. u. Syph.*, vol. xii. (1885), . 655, and vol. xiii., p. 151, with plate of same case, a girl æt. four and a half years; he mixes it up with the cases of ringed pigmentation.

§ Payne, "Hairs showing Nodose Condition," *Path. Trans.*, vol. xxxvii. (1886), p. 540, with plate. There were two cases, brothers, æt. one and two years.

‖ Luce's case, quoted in Ziemssen, p. 410, in connection with delayed hair development, is another instance.

Colcott Fox, Breda, Archambault, Hallopeau, Beatty,* etc., have published cases, and Thin's case,† shown at the Congress of 1881 in London, presented a closely analogous if not identical condition.

Several members of the same family were affected in the cases related by McCall Anderson ‡ and Fox. Breda's case was an epileptic, and the formation of freshly affected hairs coincided with the fits.

In this affection, there is a regular succession of fusiform nodes connected by narrow portions, giving a very distinctly beaded appearance, and extending from root to tip (fig. 63). Nearly all the pigment is concentrated in the nodes, the internodes being almost colourless,—hence resembling, in that point, the alternating rings of colour already described; but in that affection, with which Lesser has confused the one under consideration, there is no structural alteration. Nearly all the cases have occurred in childhood, or infancy, and most are probably congenital. The hair breaks off short, but always at one of the internodes, with a brush-like ending, and, all over the head, is only about one to three

Fig. 63.—Moniliform hair. Obj. 1 in., ocul. Zeiss 3 in.
The illustration is taken from a hair kindly given me by Dr. Walter Smith.

inches long. The disease is due to defective development during the formation of the internode, while the nodal part is probably normal, or nearly so, in diameter. Fox found that the beaded arrangement extended quite down to the root of the hair. It affects not only the scalp, but both the fine and coarse hairs all over the body. Brocq says that keratosis pilaris is present in these cases. There is nothing to be done in congenital cases, but, when acquired, efforts should be directed to the rectification of any defect in the general health, and local stimulation of the scalp by the faradic brush.

* Wallace Beatty and Alfred Scott wrote a paper in *Monatsh. f. prak Derm.*, vol. xv., p. 208. They give the abstracts of twenty-four cases besides their own, and consider the affection due to a tropho-neurosis. They describe the inner root sheath as thickened at the internodes.

† Vol. iii., p. 190, of the *Trans. Internat. Med. Cong.*, 1881.

‡ A remarkable family chart is recorded in Anderson's *Diseases of the Skin*, p. 56, fourteen out of twenty-seven individuals in six generations having been affected; but this is beaten by Sabouraud, with seventeen cases in five generations, in *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 830.

CANITIES.*

(Hoariness, from *canus*, grey-haired.)

Synonyms.—Greyness of the hair; Whiteness of the hair; Atrophy of hair pigment; Blanching of hair; Trichonosis cana; Trichonosis discolor; Poliothrix.

Canities may be simply one of the evidences of senile decay, or may occur early in life. There are all grades of it, both as it affects the hairs individually, and collectively.

Collectively, it may exist pretty uniformly mixed with the normal colour in one or more regions; or there may be one or more tufts of white, giving a piebald appearance; or the head may be quite white and the hair only grey elsewhere; or there may be blanching of the whole hairy system.

In some cases, the whiteness is only temporary; thus Wilson relates a case where the hair was grey in winter and recovered its colour in the summer. Sir John Forbes also had grey hair for a long time, then suddenly it all turned white, and after remaining so for a year, it returned to its original grey. While canities is generally slow of development, it may be quite sudden, *e.g.*, in a few hours. Hebra and Kaposi disputed this on theoretical grounds; but apart from historical instances, the following well-authenticated occurrences, while under medical observation, are conclusive on the point.

In Landois' case,† the hair of the beard and head of a delirium tremens patient became grey in the course of a night while he was in the hospital. Brown-Séquard observed, in his own person, that a few hairs daily became white, and in Raymond's ‡ case, observed with Vulpian, the patient was a lady of neurotic type, who after mental strain had intense neuralgia; during a severe paroxysm, the hairs changed colour in five hours, all over the scalp except on the back and sides, most of them from black to red, but some to quite white; and in two days all the red hair became white, and a quantity fell off. She recovered her general health, but with almost

* *Literature.*—Wilson's *Lectures on Derm.*, 1878, p. 166, *et seq.* Landois, "Das plötzliche ergrauende Haupthaare," Virchow's *Archiv*, vol. xxxv. (1866), p. 575, with plate, contains numerous references.

† *Loc. cit.*

‡ Quoted in *Lancet*, October 14th, 1882.

total loss of hair ; only a few red, white, and black hairs remaining on the temporal and occipital regions.

The case of a Spanish cock, which was nearly killed by some pigs, is also to the point. The morning after the adventure the feathers of the head had become completely white, and about half of those on the neck and back were also changed.

Cases somewhat less sudden are more common. B. Thornton of Margate records the case of a lady in whom the hair of the left eyebrow and lashes began to turn white a fortnight after a sudden grief, and within a week all the hair of these regions was quite white, and remained so ; but no other part was affected, nor was there any other symptom.

Individually, a hair may be quite white, or, as I have seen it after alopecia areata, it may be coloured near the root and white at the distal end, the pigment extending farther in the medullary than in the cortical part (fig. 64). The reverse of this is seen in

Fig. 64.—Hair from a case of alopecia areata during recovery, becoming gradually pigmented.

the preparation No. 537, in the museum of the College of Surgeons, the part near the root only being white, while the distal end was coloured. It formed a narrow horse-shoe band round the head, in a girl æt. seven years. Richelot observed a similar phenomenon, in patches, in a girl with chlorosis ; the newly formed hair becoming again pigmented when the chlorosis was cured. In Falkenstein's case, a man æt. thirty-three, many of the hairs were white in the upper and dark in the lower part, in various proportions ; a few were white top and bottom, with a brown band between, up to half an inch wide.

A hair may also be white or coloured in rings or bands (**ringed hair**), but this is very rare. In a case of E. Wilson's,* a boy æt. seven, every hair was affected ; the brown segment was double the length of the white one, together measuring one-third of a line, and Wilson thought the dark represented the day's growth, and the white that of the night. A specimen of a similar defect is in St. Bartholomew's Hospital museum. In a case reported by

* Wilson's Lect., *loc. cit.*, No. 535-6, Coll. of Surg. Museum.

Karsch * of Münster, of a youth of nineteen, all the hairs were not the same, the rings were not all of uniform diameter, being closest and narrowest in the middle of the shaft, whilst some hairs were half white and half brown, and some all white or all brown.

A case very analogous to that of Karsch came under my notice recently. It affected the moustache of a gentleman æt. thirty-nine, and was associated with trichorrhexis nodosa. The hairs were affected in various degrees (fig. 65, *a*). Air bubbles were in stellate heaps round the medulla at regular intervals in some hairs, but not in all, and the pigmented portions were much longer than the unpigmented areas.

Etiology.—Sex has no influence. It is uncommon before the patient has grown up, but it is seen in children occasionally, and a few cases with one or more white tufts have been congenital,

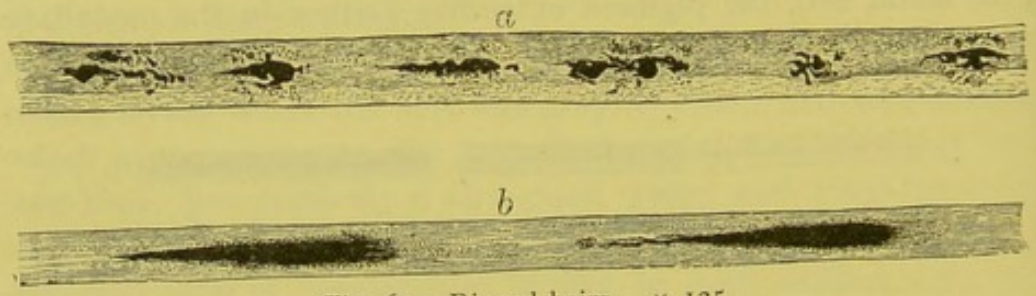

Fig. 65.—Ringed hairs. × 125.

a, from moustache; *b*, from scalp of another patient, viewed by transmitted light By reflected light the darkest parts are shown to be air, the pigment being between these collections of air globules; the diameter of the shaft is slightly increased where the air is situated.

and even hereditary through several generations (Morgan, Joynt). The youngest idiopathic case in my practice was nine years old, and limited to a single patch. It may be seen in a single patch also after long-continued and severe neuralgia, in multiple symmetrical patches as a part of leucoderma, and as irregular piebaldness during recovery from alopecia areata. The lower grades of grey hair, and more rarely complete canities, are seen after specific fevers, especially scarlatina and typhoid, and after any prolonged strain or drain, mental or bodily, of the general system.

Premature greyness is also frequently due to family predisposition. The influence of a nervous shock, especially from intense fear or grief, both for gradual and rapid blanching of the hair is

* *De Capillitii Humani Coloribus quædam. Diss. inaug. Gryphiæ*, 1846. Quoted in full by Landois, *loc. cit.*, with plate and microscopic description.

generally admitted, *e.g.*, rapid whitening of the hair has been observed in some who suffered from melancholia. Another instance of nerve influence is, when the eyelashes have turned white in sympathetic ophthalmitis, after destruction of the opposite eye. Instances are reported by Nettleship,* Hutchinson, Jacobson, etc.

Pathology.—Ehrmann's explanation of the mechanism of hair pigment discoloration is already set forth under the pathology of pigmentation in general, and is probably the correct one for senile and other gradually developed canities; but the theory of Landois and others, that air bubbles form in the substance of the hair, enough sometimes to produce perceptible bulgings and to conceal the pigment, which, however, is still present, best explains the cases of sudden blanching.

Prognosis.—As a rule, the prognosis is bad; the hair generally remains white for the rest of life; still, as will be seen from the cases related, recovery of the normal colour does occur, and is most likely to happen when the colour has been lost after some severe illness, or some other definite and remarkable cause. A remarkable case of restoration is related by W. O'Neill † of Lincoln. A man who was both bald and grey, æt. fifty-nine, became suddenly hemiplegic, and remained so; three and a half years later dark hair began to grow on the bald patch, and the grey hair of the head and beard began to fall off, and was replaced by dark brown hair, until the whole head and beard were the same as when a young man. The man was a great chlorodyne drinker.

Even in congenital cases, with tufts of white hair, it has in a few instances become coloured. Unless the patient is over fifty, canities after alopecia areata is generally only temporary. Where there is a hereditary tendency to early greyness, the prospect of recovery is very slight.

Treatment.—But little can be done by way of treatment; no drugs or treatment have any direct influence on pigmentation production or distribution in the hair. Where it has arisen from exhausting disease or nervous strain, general tonics and hygienic measures may lead indirectly to restoration. Hypodermic injections of pilocarpine nitrate or hydrochlorate gr. $\frac{1}{10}$, gradually increased, or tincture of jaborandi ℿx and upwards internally, might be tried. Faradisation with the wire brush electrode also offers a chance for

* *Lancet*, December 22nd, 1883, Rep. of Ophthal. Society.

† *Lancet*, July 20th, 1889.

some cases. Arsenic and nux vomica as nerve tonics may be of some service. Dyeing the white hair may sometimes be an improvement.

DISCOLORATION OF THE HAIR.*

Several instances of change of colour, other than canities, are on record. One of the most remarkable is Prentiss' case. The patient was suffering from pyelo-nephritis and anuria, for which pilocarpine hydrochlorate was subcutaneously injected for over two months. At the end of twelve days the hair, which was light blonde, began to turn, and continued to get darker for some time after the medicine was stopped, and at the end of six months had become nearly jet black, both on the head and axillæ; the hair was also coarser, and the eyes had changed from light to dark blue.

Alibert and Beigel relate cases of women with blonde hair which all came off after a severe fever (typhus in one case), and when it grew again was quite black. Alibert also saw a case of a young man who lost his brown hair after illness, and after restoration it was red. In an epileptic girl of idiotic type, in an asylum at Hamburg, with alternating phases of stupidity and excitement, the hair in the stupid phase was blonde and in the excited condition red; the change of colour taking place in the course of two or three days, beginning first at the free ends, and remaining of the same tint for seven or eight days. The pale hairs had more air spaces than the darker ones. There was much structural change in the brain and spinal cord. Smyly of Dublin reported a case of suppurative disease of the temporal bone, in which the hair changed from a mouse colour to a reddish-yellow; and Squire records a congenital case in a deaf mute, in which, on the left side, the hair was in light patches of true auburn and dark patches of dark brown, like a tortoiseshell cat; on the other side, the hair was dark brown.

Accidental discolorations occur of various tints, *e.g.*, blue hair, is seen in workers in cobalt mines and indigo works; green hair,

* *Literature.*—See paper by G. F. Jackson in *Amer. Jour of Cut. and Ven. Dis.*, vol. ii., p. 173. *Phil. Med. Times*, 1881, xi. 609. *Lancet*, June 1881, quoted by Landois, pp. 583-4. Changes after death from dark brown to red, and from red to grey, have occurred in rare instances.

in copper-smelters; deep red-brown hair, in handlers of crude aniline; and the hair is dyed a purplish-brown whenever chrysarobin applications, used on the scalp, come in contact with an alkali, as in washing with soap.

ALOPECIA.

Deriv.—ἀλώπηξ, a fox, because partial baldness is common in that animal.

This is the generic term for all kinds of baldness, irrespective of the cause.

It may be complete or partial, and the latter may be in the form of general or local thinning; or in bald areas of various size.

The varieties of baldness are classified etiologically into congenital, senile, and premature, the last being idiopathic or symptomatic.

Congenital Alopecia. This is rare, and when present is seldom complete, being only scanty or patchy. In a complete case recorded by Schede,* microscopic examination showed that there were no hair bulbs. Thurnam † records a case of two cousins who had each only a little lanugo growth on the body and head, only four teeth (molars), and who never perspired or shed tears. He also quotes other cases.

A family predisposition to a scanty development of hairs is not uncommon. Hutchinson ‡ showed a case of a boy of three and a half years to the Medico-Chirurgical Society with congenital baldness of the scalp, associated with atrophy of the skin generally, while the mother had been bald from alopecia areata from the age of six years.

Senile Alopecia (Senile Calvities). Here, as Pincus and Neumann have shown, the loss of hair is only a part of the general atrophy of the skin structures. The age at which it comes on varies greatly, and all the other hairy regions of the body which share in the cutaneous atrophy are affected, but rarely to so marked a degree as in the scalp.

The baldness begins first at the posterior part of the vertex,

* *Archiv für klin. Chir.*, Bd. xiv.
† *Med. Chir. Trans.*, vol. xxxi. (1848), p. 71.
‡ *Med. Chir. Trans.*, vol. lix. (1886), p. 473.

and then spreads forwards and backwards until the whole crown is denuded, leaving only a fringe of greater or less width at the sides and back.

The theory to explain this distribution is that the scalp at the crown is much thinner than at the sides, and that the nutrition of the hairs at the vertex is therefore more easily interfered with. A similar explanation is put forward to account for the comparative rarity of senile baldness in women, their scalp being thicker and containing more fat.

Idiopathic Premature Alopecia (Alopecia Simplex). As a rule, in this form, the distribution is the same as in senile alopecia, but sometimes the loss begins at the temples, the hair line receding until there is only a central crest left.

It may begin at any time after puberty, though not often before thirty years of age; this again is much less frequent in women.

According to Pincus, instead of being, like the senile form, a part of the atrophy of the whole skin, there is increase of the connective tissue, which contracts and compresses the hair follicle, and thus produces its atrophy.

More or less seborrhœa is present in some cases, and then the treatment for this condition should be vigorously pursued for a long time; but in a large number of cases there is no external sign of disease beyond the fact that there is an excess over the normal daily shedding of hair, and this is replaced by a weaker growth, which is both shorter and finer, and this again by a weaker still, until there is at last no production; or there may be temporary improvement, and normal hair growth again for a time, but the final result is only deferred. As a rule, complete baldness of the crown is only reached after some years, but occasionally it is a matter of only a few weeks or months.

It is difficult to assign any cause for this alopecia, except family predisposition; the baldness being sometimes observed in the male members of the family for several generations. Premature greyness is also often associated with it.

Symptomatic Premature Alopecia. This may be temporary or permanent, the loss may be either sudden or gradual, and dependent upon local or constitutional causes. From constitutional causes, it is seen after or during a severe illness, especially fevers, in

cachectic conditions, such as phthisis, diabetes mellitus, syphilis, leprosy, etc., or it may be of neurotic origin, as after violent shocks, or intense or prolonged anxiety.

The local causes are very numerous, the most common being—

1. Chronic dry seborrhœa of the scalp, which may lead to permanent baldness; women are as liable to it or even more so than men, it being the chief of all causes in women.

2. Most inflammatory diseases of the scalp, if severe or prolonged enough, such as erysipelas, small-pox, psoriasis, eczema, etc. The loss varies with the severity of the affection, and is usually recovered from after the removal of the primary affection, unless suppuration has been so free as to destroy the follicles.

3. It may be seen in lupus erythematosus, in morphœa, and in folliculitis decalvans; in all these, the baldness is permanent.

4. Brocq* considers that the keratosis follicularis seen in ichthyosis may in some cases affect the scalp also, and lead to permanent atrophy of the follicles, and falling out of the hairs involved, which are replaced by lanugo hairs, round which slightly reddened papules may then be visible. It is, he thinks, a fruitful cause of baldness in infancy, adolescence, and even maturity, and may occur without ichthyosis. He considers the ulerythema ophryogenes of Taenzer is a form of this keratosis pilaris capillitii, of which the ultimate result is a cicatricial atrophy of the skin, and that monilethrix is also due to it.

5. In parasitic diseases, such as tinea tonsurans, where the loss is temporary only, except after severe kerion; and in favus, where the loss is often permanent, owing to pressure atrophy, produced by the favus cups.

6. Syphilis may produce it either early in the disease, as a part of the general cachexia, or consequent upon some eruptions of the scalp, while in the later stage it may be due either to seborrhœa, which is a very common affection after syphilis, or from ulcerative lesions.

In the first two, the loss is only temporary, and causes a general thinning, with lack of nutrition, shown by the straight, dry, and lustreless condition of what remains. In the latter forms, it may be permanent from seborrhœa, and will certainly be so after ulceration.

7. Local injuries—a blow producing a bruise, the sting of a bee

* *Ann. de Derm. et de Syph.*, vol. iii. (1892), pp. 773 and 1197; also in his treatise, p. 384.

(Wilson); friction—*e.g.*, from the headgear in women, or from their straining the hair in abnormal directions.

8. Both the neurotic and parasitic forms of alopecia areata.

Treatment.—This depends on the cause, which must therefore be ascertained. When dependent upon a constitutional cause, the means necessary for the restoration of the general health will go far towards promoting the growth of the hair, though local stimulation is a useful adjuvant.

In congenital and senile baldness, there is not much good to be expected from treatment.

In idiopathic premature baldness, general tonics, invigorating measures and local stimulation, either in the form of the faradic brush, or cantharides, mercurial, alkaline, and alcoholic preparations, for which there are various formulæ at the end of the book (Lotions, F. 43 to 48), are indicated. These last must be well rubbed in twice a day, and then a little fat or oil applied to prevent excessive dryness.

Lanolin is useful for this purpose, as it resembles the natural lubricant of the hair, but requires about a fourth part of almond oil or parolein, as it is too sticky by itself. From one-half to one grain of hydrarg. perchlor. is a useful addition. See also the treatment for alopecia areata.

The treatment for chronic seborrhœa has already been given, and also that for inflammatory diseases; when the inflammation has been subdued the hair springs up again; local stimulation is rarely to be employed, as it may start the inflammation again.

In parasitic diseases, the destruction of the parasite is the means for cure of the baldness, for which see under those diseases.

Alopecia from syphilis requires the constitutional treatment for that disease, and mercurial preparations will be the best local stimulants, such as the ung. hyd. nitrat. dil., the ung. hyd. ox. flavæ or ammoniatæ, or, sometimes, the perchloride gr. 2 or 5 to ℥j of lanolin.

ALOPECIA AREATA.

Synonyms.—Porrigo decalvans; Tinea decalvans; Area Celsi; Alopecia circumscripta.

Definition.—An acutely produced baldness, with complete denudation of the affected parts, primarily in round patches, but which may spread into large areas, or even over the whole hairy system.

At least four classes of cases are recognisable under the term alopecia areata.

In the first, are universal cases, usually of rapid development, and not necessarily in patches.

In the second, are those cases with one or more patches in the course of a nerve, or on the site of an injury.

In the third, are cases with small atrophically depressed patches which Neumann called alopecia circumscripta.

In the fourth, are cases of the common type, in patches or bands of irregular distribution, and with characteristic ! hairs at the border of the spreading patches.

The first two classes are undoubtedly of tropho-neurotic origin, the third is very probably so, and the fourth is, in my opinion, parasitic, and forms the largest proportion of the cases.

The first three therefore form a group which might be comprised under the head of "**Alopecia Neurotica**," with sub-groups universalis, localis, and circumscripta.

Class I., **Alopecia Universalis**, comprises those cases in which the alopecia is universal, and in which the hair does not necessarily come out in patches, but there is general falling off, often very rapid, and accompanied in some cases by changes in, or even falling off of some or all of the nails, as in the following instance. A boy, aged eight years, without any apparent cause or preceding ill health except a poor appetite, within ten days lost the whole of the hair all over the body, together with all the finger and toe nails. Three years later, when I saw him, there was not a hair or nail present, and the nail bed was rough and irregular, as if the nail had been torn off, leaving a little horny matter behind. In a second case, a boy of fourteen, the whole of the hair had come off some time previously, soon after a fall from a tree on to his head. In a third, a girl aged two years fell nine feet from a window. She did not recover complete consciousness for three weeks, and a week after regaining her senses the hair began to come out on the left side of the head, and she became quite bald in a week, with the exception of a small tuft at the left occipito-parietal suture; the nails were unaffected. A year and a half later the hair was returning, leaving circular bare patches like a commencing alopecia areata. Rapidly universal cases after worry, fright, and injuries to the head have been recorded by Tyson, Duckworth, Cooper,

Todd, Holmes, Collier, and others in this country and abroad. In some, the hair began to fall out in patches; in others, it came out indiscriminately, or even in masses. In a captain whose ship was struck by lightning, and who sustained scalp wounds, it began the very next day on the beard, and then the scalp and the rest of the body were denuded; two months later, the nails scaled off from the fingers, but not from the toes. In several other of the above cases, some or all of the nails were lost. In one of Tyson's cases, the big toe and thumb nails alone escaped. In a very large proportion of these, loss of hair is permanent, and the course is for the most part rapid. In the following instance, it was more gradual. A woman, aged thirty-five, began to lose her hair during pregnancy, nine months before I saw her, but it was several months before the alopecia was complete on the scalp, with the exception of a few straggling hairs on the back. The eyebrows and lashes were partially lost; some of the nails were deeply furrowed, others were half separated from the matrix, while others again were flattened with slight pitting. The universal cases of this type are really very rare, although, owing to their striking character, a considerable number are recorded in dermatological literature.

In this and in the other forms where a sufficiently large area is affected, the skin is whiter than normal, preternaturally smooth, and soft to the touch when pinched up; it is evidently thinned, and having lost much of its elasticity, pits slightly on pressure. The loss of the eyebrows and lashes produces a striking and characteristic aspect.

Class II., **Alopecia Localis seu Neuritica**, comprises cases of baldness occurring in one or more patches at the site of an injury, or in the course of a recognisable nerve. These are very few in number comparatively, but there are many on record. In a woman with melancholia, aged thirty-four, whom I saw with Dr. Savage at Bethlem Hospital, there were white patches of hair in the course of the left supra-orbital, and one between two or three inches in diameter was almost bare; there was no history of them obtainable. Many cases have been preceded by severe and persistent neuralgia, and even when the hair is restored on the bald patch it not infrequently remains white. In Pontoppidan's case, a girl, aged ten, had some glands removed in the left carotid region, which was followed by ocular paralysis, indicating injury to the

sympathetic nerve, while loss of hair in areas on the back of the head took place, and six weeks later the whole back of the head became denuded in the region corresponding to the domain of the major and minor occipital nerves, and the posterior branch of the auricularis magnus. Within three months, the hair began to grow again. Joseph excised the second cervical ganglion in the cat and rabbit, and this operation was followed by alopecia patches in the territory of the second cervical, the occipital, and the great auricular nerves; but the results were not uniform, and his experiments, though partially confirmed by Mibelli, are not accepted as conclusive; for Behrend and others have not been able to get the same effects. If my theory, that there is a neuritis in all this class, is correct, the experimental discrepancy might be accounted for by the presence or absence of that factor, as it is probable that in the most careful experiments the neuritis would be avoided. In corroboration of the neuritis theory, two cases related by J. Collier* may be cited. In one, a schoolboy received a blow on the left ear in a fight; it was followed by severe neuralgia, which lasted a fortnight, and then a large bare patch was noticed in the left parietal region; in about a month, the hair grew again, but was quite grey. In the other case, a blow with a cricket ball was followed by a bald patch one inch above the injury; the hair grew again after some time. Similar cases are scattered through the literature of the subject.

Class III. is the form originally described by Neumann as **Alopecia Circumscripta seu Orbicularis.** In this, the patches are circular and always small, from a lentil to a pea in diameter, much depressed below the surface, with often a marked decrease of the sensibility. It is, in my experience, a rare form, and the prognosis is very unfavourable. The following are instances from my own practice. A gentleman, aged thirty-five, in robust health, and with no history of antecedent worry, syphilis, or other serious illness, had a large number of bare, depressed, pea-sized spots on the scalp, chiefly at the vertex; the hair round them was loose, and came out with the sheaths attached, and there were no ! hairs. All the nails of the fingers and toes underwent the following changes: they first separated from their bed, then became of a dirty yellow colour, and finally thickened without splitting; the

* *Lancet*, June 11th, 1881.

surface remained smooth on the finger and big toe nails, but in those of the smaller toes the free end was thick, yellow, and everted, while the proximal part was thinned, rough, and striated, but not discoloured, a deep furrow separating the thin from the thick part. In a second case, the patient was an unmarried lady, aged forty-six years. The alopecia began fifteen years previously in small patches, on which the hair has never grown again, but the baldness had increased rapidly in the last two years from the multiplication of the patches. On the vertex, were several irregular areas of perfectly bald skin, atrophically and deeply depressed below the surface, and there was no trace of a hair follicle left on them. There were one or two stumps adjacent which drew out without requiring any force. There were also small patches of baldness, not sharply defined or round, but very atrophically depressed. Her general health had been bad for several years; she was subject to vomiting two or three hours after taking food, bringing up mucus only, but this had been better lately; her sight had been failing, especially in the left eye, for the last two years, and she was very subject to chalazion; she was also dyspeptic. Sangster relates two cases of this form—his own and a case of Pringle's—in the February number of the *British Journal of Dermatology* for 1890.

These cases are distinguished by the very marked depression of the bald area below the surrounding skin, and must not be confused with the pea-sized, bald, smooth, white spots on which the area is not depressed, and which are to be referred to the fourth class.

The pathology of this form is not so conclusively neurotic as that of Classes I. and II., but the involvement of the nails is strongly suggestive of it. Nothing is known about its etiology.

Class IV. represents what may be called true **Alopecia Areata**, the previous forms having hitherto been mixed up with it. In opposition to the other groups, it might with propriety, in my opinion, be called alopecia parasitica, or the old name tinea decalvans might be revived. Inasmuch, however, as its pathology is still a moot-point, it is better to adhere at present to the generally received title of alopecia areata. It forms at least 95 per cent. of all the cases of alopecia with complete denudation of the affected part, and of all forms of skin disease about 2 per cent. in England, 1·5 per cent. in Scotland, 3 per cent. in France, ·5 to ·8

per cent. in North and South Germany, and about ·5 per cent. in America.

Symptoms.—The disease usually commences on the scalp, or in males it may be on the whiskers or beard; less frequently, it may affect any part that is normally hairy, such as the eyebrows, axillæ, and pubes, or even the downy parts.

There may be only one or many patches, the multiple patches being formed in irregular succession and arrangement, symmetry being exceptional. Although there is no unilateral tendency, on the whole, in men, the earlier patches are more often situated

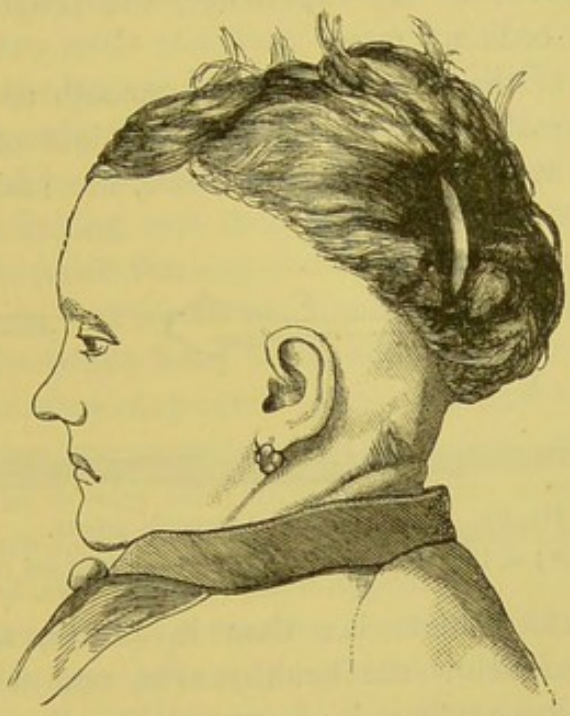

Fig. 66.—Band form of alopecia areata.

posteriorly, just above the line of junction of the parietal and occipital bone, and at a corresponding level at the sides; this corresponds in many instances with the line of close contact of the head covering. The chin is also a not uncommon position, but almost invariably in those who are clean shaved. The shape of a patch is primarily round, though it may become irregular by coalescence with neighbouring patches.

When not compound, the patches range from one-half to two inches in size, and while each is generally rapid in its formation, and soon attains to its full development, the disease as a whole may spread very slowly. There is no limit to the area of the compound patches, and by the frequent formation of new ones,

the whole scalp and face may be denuded. On the other hand, the disease may be arrested at any point, from a single small patch upwards.

A less frequent form is a broad band of baldness which may go all round the head (fig. 66). This band or serpiginous form is much less common than the round patch form, and often extends much more rapidly. In one of my cases, the hair came off in zigzag channels until the whole scalp became denuded. This variety is the **ophiasis** of Celsus, who considered it the more favourable form, but this is only correct when it occurs in children; in adults, in my experience, the prognosis is not so good as in the ordinary form.

The surface of the bald patch is as smooth as a billiard ball, whiter than normal, and whether from the loss of so many hair bulbs, or from atrophy of its own tissue, the scalp is obviously

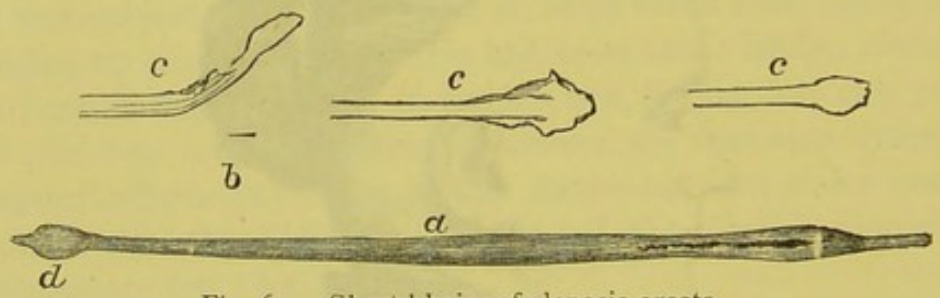

Fig. 67.—Short ! hairs of alopecia areata.
b, natural size; *a*, the same hair × 50; *c*, *c*, *c*, atrophied roots, × 50.

thinner than before, more lax than in health, and sometimes slightly depressed below the healthy skin, and while the tactile sensibility on the patches is inappreciably diminished, except perhaps with an æsthesiometer,* there is much less sensitiveness to irritants, the diseased area often remaining unaffected, while the normal skin is inflamed by the remedies applied. On the borders of the patch, as long as it is spreading, there are a few short hairs, as characteristic in their way as those of tinea tonsurans, and I have never met with them in the indisputably neurotic cases. They are generally about an eighth of an inch long, sometimes longer, quite straight, thicker at their free end than at the point of insertion, come out almost with a touch, and end in a point, or show a slight thickening at the end of the otherwise atrophied root, and look just like a note of admiration sign !, with or without the terminal dot (fig. 67). In the

* Neumann says it may be anæsthetic.

early stage, a few of these hairs may sometimes be seen in the middle of the patch, and I once saw a commencing patch uniformly covered with these hair stumps, but they were all gone by the following week. The thickening of the free end is only apparent, and represents the diameter of the normal shaft, which, owing to damaged nutrition, has broken off close to the surface, while the atrophied root is gradually extruded, and soon either falls out or breaks off at its thinnest part; hence their presence is a sign of recent extension, and they are never present in old stationary cases. Another sign of active extension is that the apparently normal hair adjacent to the patch is very loose; a moderate pull will bring out many hairs at a time.

The course of the disease is very variable. While in some cases, the patches seem to form suddenly, whole tufts of hair coming out when it is combed in the morning, without any previous symptoms, or at most slight itching, and then perhaps going on from bad to worse, patch after patch forming and running together until all hair is gone; in others, it proceeds much more slowly, taking weeks or months before the whole head is denuded; or, after going on for some time, the disease may come to an apparent termination, the hair begins to grow over some patches, while fresh ones are forming elsewhere, or fine, downy hair springs up after some time, only to fall out after a brief sojourn. In very favourable cases, the disease stops after one or two patches have appeared.

When the disease takes a turn for the better, the hair round the patches can no longer be easily pulled out; then the patch gets smaller by the formation of new hair at its periphery, or in very happily circumstanced cases, new hair springs up uniformly all over the bald area. This new hair is generally very fine and pale, and lanugo-like, even in dark-complexioned people, and is seldom of normal colour at first. In many it is quite white, and thus there may be patches of white mingled with the normal darker hair, producing a curious piebald appearance.

Eventually, unless the patient is on the wrong side of fifty, when the result is doubtful, the hair becomes more vigorous, and the pigment is restored, and it is occasionally possible to trace its progress. Thus at the distal extremity, or first formed part, both cortex and medulla are colourless; nearer the scalp, the medulla is pigmented, but the cortex white; while nearer still the whole is permeated with pigment particles (fig. 64). Although recovery is

generally very slow, months or years being required for it to be complete, the partial cases, in all but the elderly, almost invariably get well, and a large proportion even of the generalised ones eventually get sometimes complete, sometimes incomplete, restoration. Relapses are frequent, either soon or only after a long interval. Of the fifty private cases not less than eleven had had previous attacks, and of the two hundred and seven hospital cases twenty-two had had previous attacks, some of them having been attacked several times. In a lady of thirty-two years, it began when she was seven years old, and she had often been nearly well, *i.e.*, with only a single small patch; but she had never been quite free. This patient was a strong, healthy woman. In the unfavourable cases, the scalp becomes very smooth and shining, and the orifices of the hair follicles are either obliterated, or marked out by sebaceous secretion.

Variations.—Besides the band form already mentioned, there are cases in which one or more pea-sized bald spots appear in various parts of the scalp. They show very little tendency to enlarge, seldom attaining to more than half an inch, and the majority are not more than a quarter of an inch in diameter; their number, however, is very likely to increase, and occasionally they are very numerous. Their aspect is pearly white, and they are often difficult to distinguish from a scar; it is seldom possible to find any diseased hairs at the border, and very difficult to make hair grow upon them. Such a condition may be seen sometimes as a sequel or complication of ordinary ringworm, but it may also occur without any history of such an antecedent, either sporadically or in groups of cases in schools or families.

Etiology.—The disease occurs in both sexes, but is said by some authors to be more common in females; but this is not true—in my experience, out of 207 hospital cases, 112 were males and 95 females. The range of age is from two to sixty, but only 7 out of the above cases were under five, and only 12 over forty. My own extremes were three and fifty-eight years. It is more common in the young—91 were under fifteen, and 125 under twenty.

It has been asserted that it occurs exclusively among dark-haired people. This, however, is certainly not true. I have repeatedly seen it among fair-haired persons of both sexes, but I am inclined to believe that it is more common in dark-haired persons. A man aged twenty-nine said that the disease was of

fourteen years' duration altogether, though his hair had regrown several times. The mother, who has dark hair, first had it, then the patient, who also has dark hair, and then his younger brother, also with dark hair. The father and sister, who have fair hair, have not had it. This is not a solitary instance of such a preference. It is seen in all stations of life, but is much more common among the poor.

The etiology of the admittedly neurotic group has been sufficiently discussed with the clinical description of each class. There remains, therefore, only that of Class IV., or alopecia areata proper. In a very large proportion of cases, the evidence is entirely negative, and satisfactory explanation of its causation cannot even be conjectured from the history. In a small number, there is very strong evidence of its having been communicated from another sufferer from the complaint. In a larger number, it can be shown that contagion is the probable cause. As an instance of direct contagion may be given the case of a lady of fifty, who stated that hers began soon after sleeping for three weeks with a married daughter who was suffering from it, who, in her turn, ascribed it to having slept with a lady who had been quite bald from childhood.

Cases where contagion is probable are dependent on the patients' statements that they have been in more or less close contact with others suffering from it, or that bald patches came on the chin soon after being shaved by a barber, or on the head soon after having their hair cut.

In a few instances, I have seen it in more than one member of the same family, such as brother and sister, mother and child; but the best instance of possible contagion is that of Hillier,* in a parochial school of eleven hundred children of both sexes. The disease was limited to the girls of one block from seven to fourteen years old, forty-three of whom were suddenly found to be affected, while one girl had had it for some time. The patches varied in size from a fourpenny-piece to an inch or more in diameter; on some children there was but one bald spot, on others two or three; most of the patches were round, but some were irregular. He found in the root sheaths of two or three hairs a number of spores of a fungus, having all the appearance presented by the fungus of tinea tonsurans, and many atrophied hairs.

* Hillier's *Handbook of Skin Diseases*, p. 286.

The following series of my own are evidently of the same nature: Eight children in one family while at the seaside had each a few small, perfectly bald spots on their heads. They were quite bare from the first, and never larger than half an inch in diameter. After a time the governess, æt. twenty-four, observed three pea-sized, oval, bare spots on her own head. She then went to her home, where her doctor told her it was alopecia areata, and not contagious. She therefore slept with her adult sister, who soon afterwards showed similar spots on her head. The mother of the children when she came to me had a bare, round spot half an inch in diameter, in the occipital region. It had been noticed for three weeks. The hairs round were loose; there were no short hairs, but one pulled out of the border showed distinct fungous elements, indistinguishable from those of tinea tonsurans.

In no case were there more than three spots, and they were all small. In one child, there was a history of a red ring on the side of the cheek. Whether this small-patch variety is the same, or a different disease from the ordinary form of alopecia areata, is open to discussion.

Many endemic outbreaks have been recorded from time to time in France by Hardy, Besnier, Leloir, Dubreuilh, Feulard,* etc., in regiments, ascribed to the use of the "tondeuse," or hair-clipper, in a fire brigade in Paris, etc., and the belief in a contagious form of alopecia areata is firmly rooted there; while in Germany and America it finds scarcely any supporters, and in England few except Hutchinson and myself accept it. Of course it is not contended that it is readily contagious like ringworm, only that under favourable circumstances it may be communicated from person to person.

In a certain number of cases, a relationship to tinea tonsurans can be demonstrated. Hutchinson believes that in alopecia areata in adults, ringworm in childhood has been an antecedent. Ringworm, however, is so common a disease that its existence at some time prior to the alopecia areata would not prove much. It can, however, be shown that in those countries, like France and England, where tinea tonsurans is most frequent, so also is alopecia areata.

* Feulard stated at the Dermatological Congress of 1892, that in ten months, ending in May 1892, there was an average of 3·3 out of every 1,000 men in the army affected with pelade, and the numbers were greatest in the great centres, and culminated in 10·6 per 1,000 in Paris.

Instances in which adults who have been in contact with ringworm have soon after developed alopecia areata are not rare, while in children such a sequence is comparatively common. Then I have repeatedly seen cases of ordinary ringworm of the head with characteristic bent hairs, which after being treated for some time change into smooth bald spots with the straight ! hairs of alopecia areata. That smooth bald spots occur *ab initio* which it is acknowledged are of the nature of ringworm, even by ardent advocates of the universal application of the neurotic theory, is an acknowledged fact. In one family, in which several were attacked, there was a strong reason to believe it was originally contracted from a horse with ringworm. In some of this class of cases, the patches are very small, from a hemp seed to a large pea in size, while in others they are of the ordinary size and aspect of alopecia areata. A lady nurse, aged thirty-five, had tinea tonsurans at the nape just where the hair commences. I got her apparently well with some difficulty, and a month or two later she came with a patch of alopecia areata on the temple. Another lady, about thirty, came with a single patch of alopecia areata, which she had noticed two days. She wanted to know if it was ringworm, as she had recently been in contact, though not very closely, with a child affected with that disease.

It may be said that these are the cases we all recognise as the bald form of tinea tonsurans. Without denying this, I will only remark that they are often absolutely indistinguishable from alopecia areata, possessing the straight ! hairs of that affection, and not the bent and twisted ones of ordinary tinea tonsurans.

Excluding cases of the alopecia neurotica group, 90 per cent. of all the rest are in apparently perfect health; and of the other 10 per cent. in my cases, 3 per cent. only had headaches and neuralgia, and in the remainder there were only complaints of trivial importance.

The skin eruptions associated with my two hundred and fifty cases of alopecia areata were single instances of eruptions which could not be regarded as otherwise than accidental. An exception may be made for leuco- and melanoderma. This association has been noted by McCall Anderson, Thibierge, Senator, Feulard, myself, etc. It would be important if the two diseases could be shown to have a definite relationship, as leucoderma is admittedly of neurotic origin, but the association is very rare. I am not

aware of any instance of the two affections being coincident in time of onset, months or years between them having usually elapsed, sometimes one, sometimes the other being antecedent. Finally, Thibierge states that the alopecia which may occur with leucoderma is of a special type, and is of bad prognosis. On this point we require further observation.

In one of my cases, a girl of seven, the baldness was said to have begun in patches after a fright, but was complete when I saw her, and of nine months' duration. There was symmetrical leucoderma of both hands and forearms, which came on some months after the alopecia. Without denying the possibility of there being cases apparently referable to Class IV., but which may be neurotic in origin, they are certainly few in number.

Pathology.—This may be summed up as follows:—There are tropho-neurotic and parasitic forms of baldness mixed up under the title of alopecia areata. No one would dispute that my first three classes are tropho-neuroses. It is also scarcely possible to dispute that there is a parasitic form, but this is only just being grudgingly admitted by most dermatologists, except in France. But while I believe that this form includes all the ordinary cases of the disease, this is not generally accepted yet; and the tropho-neurotic theory is still largely supported in spite of the fact that, if this was always a neurosis, and that too of a degenerative kind, it would be unparalleled among all other neuroses that it should be—first, a very common disease; secondly, most common in the prime of life; and thirdly, that four-fifths of its victims should be otherwise in perfect health, while those who were not quite well should, for the most part, suffer from merely functional disorders of the most common kind, probably in about the same proportion as would generally be found in a large number of people taken indiscriminately.

I do not assert that there are no neurotic cases other than those of the first three classes; but that, if there are such cases, they form a very small proportion, and it is probable that they will not show the ! hairs which characterise the rest of the class which I consider represents true alopecia areata.

There still remains for discussion the important point: Granting that there is a parasite, what is the nature of the organism? Gruby described a fungus which he called tinea Audouini; Thin, von Sehlen, and Robinson ascribe the disease to a micrococcus; but the difficulty is that the organisms have only been found

by a favoured few, and they are not agreed as to its morphological characters. This is the weak point of the case, and I cannot hope that my views and arguments will carry conviction for a long time to come. In my original paper, and more briefly here, I have endeavoured to show on clinical grounds that there is a relationship between alopecia areata and tinea tonsurans—a view arrived at independently by Hutchinson. It is worthy of notice that alopecia areata is most common where tinea tonsurans is most rife, and it is also instructive to observe that the neurotic theory is most strongly held in those countries, such as Germany and America, in which both scalp ringworm and alopecia areata are comparatively rare. In childhood, the two forms of disease can be shown to be interchangeable, while in adults we only see bald patches arising either after contact with the ordinary tinea tonsurans, or from cases similar to itself. May it not be, therefore, that alopecia areata in adults corresponds with the generally admitted bald tinea tonsurans of childhood? This would account for the otherwise curious fact that, while ringworm of the head is so common in children, it disappears after puberty and may this not be because the hair alters in its consistence, and the fungus is no longer able to penetrate into its substance, but passing down between the root sheaths separates the hair from its nutritive supply, and so leads to its atrophy and gradual extrusion? If this is so, the fungus ought to be demonstrable, and I believe that it can be so demonstrated in recent cases, if rightly looked for. That there is also atrophy, either primary or secondary, of the hair bulb and the tissues round, is clinically and microscopically evident to all, in the shrunken hair roots, the thinned scalp, its diminished sensitiveness to irritants, sometimes even to touch, and the deficiency in pigment.

Anatomy.—To find the fungus, it is no use looking on the bald places themselves, it is no use looking in atrophied ! hairs ; the fungus is never in the shaft, but on it or the attached epithelium. The best way is to pull out a good many of the loose hairs at the border of the bald area, then to examine these with a lens, and select those hairs which have most root sheath attached, rejecting those with smooth atrophied roots, and then, taking the selected hairs, cut off the greater part of the superfluous shaft, soak these root ends in liquor potassæ or a saturated solution of caustic potash in glycerine, and examine the portions of epidermis attached to the shaft ; it should not be manipulated too much, or the affected part may get detached from the shaft and be lost. The fungus is always in small foci, and perhaps only in one of several selected hairs ; sometimes it may

be seen at the very extremity of the root, as if it had worked round and separated the hair from its papilla. In most recent cases, in my opinion, its presence can be conclusively shown with a sufficiently careful search, but I have found it more easily in hairs from the beard than those from the scalp.

The anatomy of the affected scalp has been examined by Jamieson, Vincent Harris, myself, and others.

Jamieson removed skin from the living subject in a case of two years' duration, and the results were entirely negative, both for tissue changes in or around the hair follicle, as had been described by Michelson, and as to the presence of a fungus. In Duckworth's case, examined by V. Harris, the hair follicles and sebaceous glands were atrophied, and there was considerable increase of fibrous tissue round the follicle, and infiltration of the outer root sheath with a new round-cell growth; the hair follicles were

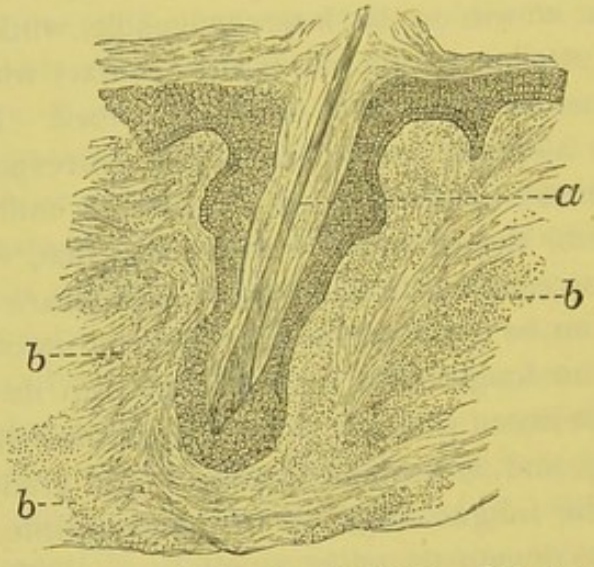

Fig. 68.—Section of scalp in alopecia areata. Obj. $\frac{1}{10}$, ocul. 2 in.
a, lanugo hair in dilated follicle; *b*, *b*, *b*, masses of round cells.

beset with nuclei, and there was an inflammatory cell infiltration in the middle of the corium, extending mainly along the vessels. No parasite was found. My own observations were made from a patch which had existed five years in a man of forty. There was a scanty lanugo growth present here and there. Microscopically, there was atrophy of all parts of the hair follicles, many of which were considerably dilated, and contained only fragments of hairy substance; in others, the follicle was shrunken, and contained small hairs. The sebaceous glands (unlike Duckworth's case) appeared abnormally large, or at least not atrophied, and broken up into very distinct lobes by fibrous septa. As in his case, there was abundant round-cell infiltration of the outer root sheath, and all round the follicles as far down as the sweat coil, which was unaffected (fig. 68). This cell growth was limited to the neighbourhood of the follicle in the deeper part of the corium, but extended horizontally in the papillary layer for a considerable distance from it. In one dilated follicle, there were round, spore-like bodies; but as the orifice was quite patent, this might have been

accidental. These observations, while they indicate the trophic changes undoubtedly present, may be due to pressure atrophy from the presumably inflammatory cell infiltration and increased fibrous tissue, and do not enable a conclusion to be formed as to the nature of the exciting cause. At the American Medical Congress in 1887, Robinson of New York showed sections from alopecia areata which had existed only a week, and found normal epidermis, signs of inflammation in the corium, round-cell collection in the sub-papillary layer, cellular infiltration with round cells, dilated blood vessels, and small arteries containing fibrous coagula.* The lymph channels in the corium were enormously dilated, and contained also a fibrous coagulum. The sebaceous and sweat glands were unaffected. In a six months' case, the changes in the papillary layer were greatest. In a case, which had lasted several years, there was atrophy of all the structures except the vessel walls. He ascribes the sudden falling off of the hair to the thickening of the walls and coagula in the vessels of the affected area. The cause of all this he ascribes to micro-organisms, as described by von Sehlen, but they were not only in the hair follicles, but in the lymph spaces of the corium, and consist of diplococci and cocci in masses, colonies, and lines, and in rows in the lymph spaces.

S. Giovannini† has examined skin from no less than twenty cases in various stages. His observations show extensive perivascular infiltration of leucocytes, especially at the lower part of the follicle and in the circular connective-tissue layer, and thence making their way between the cells of the matrix and internal root sheath, and leading to degeneration of those cells, disappearance of pigment, and often of fracture of the hair shaft in the follicle. Destruction of the hair bulb, neck of the follicle, and internal root sheath follows, the hair falls out, and there is more or less atrophy of the whole follicle, and sometimes atresia of it. If a new hair is formed, it undergoes the same sort of regressive changes, and falls out before it is mature. In old-standing cases, the sebaceous glands atrophy; and in rare cases, the sweat glands undergo colloid transformation. According to Giovannini, therefore, the whole process is the result of a deep folliculitis, but he throws no light on the cause of the inflammation. He confirms the observations of Harris and myself for advanced cases, and shows that the infiltration of leucocytes precedes the fall of the hair.

Diagnosis.—The diagnosis of the ordinary form of alopecia areata rarely presents any difficulty. The circular patches or bands of perfectly bald, smooth, white skin, with, at the beginning, a few short, club-shaped hair stumps at the margin, which come out easily, can scarcely be mistaken for *ringworm in its ordinary form*, in which the loss of hair is only comparative, the surface scaly, and the hair stumps all over the affected area bent, broken, and twisted, and extracted with pain and difficulty, or break off at the attempt. Moreover, in these stumps, the fungous elements

* *New York Med. Record*, September 17th, 1887, p. 402.

† *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 921, copiously illustrated.

are always easily demonstrable, while in those of alopecia areata they are never to be found in the short hairs.

On the other hand, in my view, bald tinea tonsurans and alopecia areata are identical, and no reliable clinical distinctions can be drawn between them.

In my experience, the presence of ! hairs distinguishes the fourth class from the other three neurotic forms. Moreover, in the first class, the universal distribution, the rapid development, and that not necessarily in patches, the frequent involvement of the nails, and the history of injury or mental shock, are the most noteworthy distinctions. In the second class, the unilateral distribution, the small number of patches, even if there is more than one, the absence of tendency to spread after the first week or two, and the antecedent injury, neuralgia, or other neuritic conditions, are the leading features ; while in alopecia circumscripta, the smallness of the patches, the deep atrophic depressions compared to the slight atrophy of alopecia areata, the permanence of the baldness, non-progressive character of the patches, and possible involvement of the nails, seldom leave room for doubt.

Prognosis.—If the patient is young and the disease in patches, recovery may be predicted in nearly all cases, in from three months to two years. In persons past forty, the result becomes less and less certain as age advances, though even then, there is recovery in a fair number. When the disease has gone on until the whole scalp is bare, the prognosis depends on the time it has been so, and on the presence of new downy hairs which do not fall out after a short stay. It is bad, when there has been no attempt at restoration after several months or years, if the scalp looks very smooth, the orifices of the hair follicles being scarcely visible, and the skin lax and atrophied.

The prognosis is very bad for most of the cases in which the hair has fallen out very rapidly and absolutely all over the body and head in the course of a week or two, but a few recover. It is good for the local or neurotic form, though the hair on the affected area not infrequently remains white. It is absolutely bad for alopecia circumscripta, as far as my experience goes.

Treatment.—Internal remedies have very little, if any, effect. Arsenic, nux vomica, iron, the mineral acids, and various nervine tonics, have their advocates, but I have never seen any good that I could trace to their use. No doubt if the patient's health requires

a tonic or other treatment, independently of the alopecia areata, it is wise and right to give it. On the strength of the restoration of the hair in a case of myxœdema, in which ʒj of the tincture of jaborandi was given three times a day for some time, I have tried it in several alopecia areata cases, the doses commencing at ♏x three times a day, and gradually increasing as tolerance was established, as at first it is apt to cause headache and even nausea; but I have not had any decisive evidence of its success. Where opportunity offers, pilocarpine hypodermically injected into the scalp in the dose of about one-thirtieth of a grain of the hydrochlorate, or just enough to produce local sweating, is worthy of a trial. In a few of my cases, it has appeared to be decidedly beneficial, and Morris has had a very successful case.

Locally, strong stimulant applications offer the best chance. One of the best is chrysarobin ʒj to ℥j of lard, or ʒss to ℥j of lanolin and oil, well rubbed in night and morning. This has seemed to be one of the best remedies in my hands; but it has the well-known drawback of sometimes producing erythema, with swelling of the face, even when applied only to the scalp, to which place it should always be restricted, and the patient should be warned of this possibility, so that he may not be alarmed at what he is apt to think is erysipelas. This drug, being both a powerful parasiticide as well as a penetrating stimulant, fits either theory. A cleaner and less disagreeable application is turpentine. The ol. pini sylvestris is the nicer form, one ounce with hyd. perchlor. gr. 2 or 4 dissolved in spirit, while ext. capsici ʒss, or more, may be added where the turpentine alone exerts too little effect. It deteriorates after being made about a week; probably oxychloride of mercury is formed; at all events, a white precipitate forms, and the fluid is less stimulating. Cantharides is a favourite application with many, either as a lotion (formulæ for which may be seen at the end), or with a view of blistering the part. Blistering the patches is often useful when the disease has ceased to spread, and at the beginning also, at the spreading edge; it should be repeated from time to time as the patient can bear it. Bulkley prefers the application of strong carbolic acid; to recent and spreading patches it may be applied freely with wool fastened on a match, and I can bear him out that it acts only as a superficial escharotic; the skin is immediately whitened, and the epidermis peels off in a few days, but no sore

or deep destruction ensues. I cannot say, however, that the beneficial results have been very striking; and if Giovannini's observations are correct, and there is perifollicular inflammation at a very early stage, it becomes a question as to whether we are not going on the wrong tack, and that it would be wiser to use in the early stage, mild parasiticide applications which do not excite inflammation, lest we should unwittingly be adding fuel to the fire. Faradising the scalp is also useful at the late stage, a double-tufted wire brush,* to which both poles are connected, being used as the electrode, and the scalp is brushed until the skin is well reddened. Gaiffe's and Thistleton's small coils are suitable instruments for the patient's own use.

Thin, acting on the parasitic theory, has revived the old practice of rubbing in sulphur ointment, for which he claims uniformly successful results, and has published fifteen consecutive cases so treated with recovery, the ointment to be well rubbed in round, as well as on, the patches. I regret to say it has not been successful in my hands. As many cases are long continued, and improvement is at the best only slow, it is well to have alternative remedies. Hebra and Kaposi use the expressed oil of mace; liq. ammoniæ by itself, sponged in, or in the form of a liniment with equal parts of olive oil, is a good remedy, and Wilson adds four times as much spiritus rosmarini as ammonia. He also advocates equal parts of liniments of camphor, ammonia, chloroform, and aconite. The shampooing necessary to rub in these liniments has its use. Tannin, nux vomica tincture, pepper, various mercurial preparations, veratria, a legion of other remedies, have their respective champions, and testify to the obstinate character of many of the cases. When there are only patches, repeated shaving round them is advantageous, and I believe in pulling out the loose hairs round the patches before rubbing in the applications. The practice of those who believe in the universal application of the neurotic theory differs very little from that of others; the stimulating remedies are nearly all microbicide also. In all cases, the patient should be enjoined to persevere diligently, however disheartening the slow progress may be.

* I have had a cheap form of brush made for me by Thistleton.

CONCRETIONS ON THE HAIR.

LEPOTHRIX.

Deriv.—λεπίς, scale, and θρίξ, the hair.

This affection was first described by Paxton of Chichester, and then by E. Wilson, who gave it its name; but most text-books either overlook it, or mix it up with trichorrhexis nodosa, or with red sweat. As so little is known of it, I give a somewhat longer account than its importance would otherwise warrant.

The condition is very common; but as it rarely gives any trouble (though in one of my cases it was associated with intense itching), it is usually overlooked.

Symptoms.—The hairs either of the axillæ or scrotum where it is in contact with the thigh, are the only regions where it has been observed; and since both these positions are characterised by warmth and moisture, these conditions are probably essential to

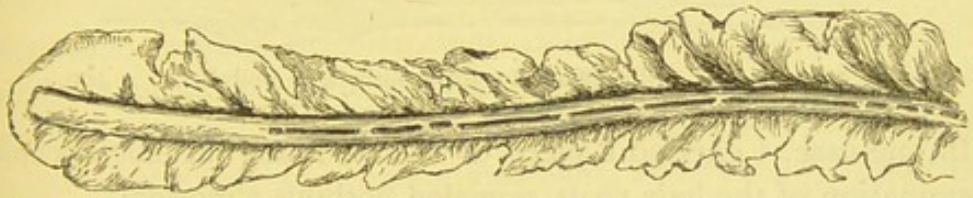

Fig. 69.—Hair of scrotum affected with lepothrix for nearly its whole length. × 100.

its production. In the most marked cases, the hairs are brittle, and generally break off if an attempt is made to pull them out. On holding a hair just removed, up to the light, the borders are irregular and ragged, and it looks dull and lustreless, like a piece of wet string. On placing a hair under the microscope, nearly all along the shaft, but generally with some intervals of healthy hair, and occupying the whole or part of the circumference, is an irregular lobed concretion, and the divisions being directed upwards, it closely resembles the feather end of an arrow (fig. 69). When the condition is slightly developed, it consists of circular, well-defined masses, lying on, but not encompassing, the shaft, and often three times its diameter. Embedded in these masses are some of the fibres of the cortex, which have been separated at one end by the concretion (fig. 70). In some places, the fibres of the whole shaft are split up, and the hair may break off with a brush-like termination embedded in the masses, or the fracture may be a clean one. In the axillæ, the concretions are often of a red colour, due to a micrococcus (see red sweat).

The change is mainly a surface one, and the concretion is very resistant both to strong acids and caustic alkalies, æther and chloroform. With a high power, the structure seems to consist of minute round masses.

Patteson * has shown that by staining with aniline violet, and decolourising by Gram's method, a short bacillus can be demonstrated, which penetrates under the cortical scales, and as it is constant, it is probably the cause of the affection. Payne † had previously found bacilli in this disease. An organism has also been found in relation to the red sweat of the axilla so often associated with this condition of hair by Babes, Pick, Balzer, and Barthélemy, who regarded the bacterium of that disease as the bacterium prodigiosum; but in hairs from the scrotum the same condition occurs without the red colour.

Fig. 70.—Hair of axilla affected with lepothrix in nodules. × 100.

In one case, I excised a piece of the scrotum, but microscopical examination of the hair roots revealed nothing abnormal.

Treatment was not very successful. Shaving and various applications were tried; and as most of my patients were in the medical profession, the treatment was well carried out. In future cases, I shall try shaving and sponging the axillæ with 1 in 1,000 bichloride of mercury solution, with a view of preventing the development of organisms in the sweat.

Piedra ‡ (Spanish for a stone). The disease is almost confined to the hair of the head of native women who live in the valleys of Cauca, in Columbia; in rare instances, it affects the hair of the head and beard in males. It consists of pin's-head-sized nodules, to the number of from one to ten, situated on the surface of the hair shaft, and beginning about half an inch from the root, either on one side or surrounding it.

* *Trans. Royal Academy of Ireland;* and Reprint, J. Falconer, Dublin, 1889. He suggests the name "trichomycosis nodosa," but this has already been proposed for "piedra," and it is better to stick to the recognised term "lepothrix," even if its pathological signification is erroneous.

† *St. Thomas's Hospital Reports*, vol. xvi., p. 268.

‡ Malcolm Morris, *Path. Trans.*, vol. xxx. (1879), p. 441, with plate.

The nodules are black, intensely hard, and rattle when the hair is combed; and, according to both Desenne* and Morris, consist of closely aggregated spore-like bodies due to fungous growths. More recently, Juhel-Rénoy,† by his preparations and cultivations, has clearly shown that the organism is a fungus, with spores and mycelium.

Its origin is unknown, but in Columbia it is supposed to be due to the women washing their hair with a mucilaginous fluid, like linseed oil.

Juhel-Rénoy, as a result of experiments in cultivation, suggests as a treatment repeated sponging with 1 in 1,000 solution of corrosive sublimate used as hot as possible, petroleum æther being a useful adjunct.

Chignon Fungus.‡ Beigel describes this as occurring as oval or roundish masses surrounding the hair shaft at irregular intervals. It was due to a fungus, which Hallier regarded as a species of sclerotium, calling it sclerotium Beigelanum. Behrend § is of opinion that it is identical with piedra. Beigel also describes another nodular disease of the hair of the head, due, he thinks, to a disease of the hair sac, the nodules being composed of compressed cells, like those of the inner root sheath. (See "Hair-eaters.")

Tinea Nodosa ‖ is a name given by Morris and Cheadle to a case of nodular growth on the hair of the whiskers and beard of a young man. An instance of it came under my notice in which it affected the left side of the moustache of a medical man, who complained that the hair, if twisted up, stuck together. On examination, the hairs were found to be ensheathed in a concretion, which made the

* *Lancet*, vol. ii. (1878), p. 165, is an abstract of Desenne's paper, read before the Académie des Sciences. In the same volume is much correspondence on the subject, in which the disease is erroneously mixed up with trichorrhexis nodosa.

† *Ann. de Derm. et de Syph.*, vol. ix. (1888), p. 777, and vol. i. (1890), p. 766, illustrated. Juhel-Rénoy wishes to rechristen it "trichomycose nodulaire," the same name that Patteson unwittingly proposed for lepothrix.

‡ Beigel, *Diseases of the Hair*, p. 111; also Tilbury Fox, "A New Fungus," *Jour. Cut. Med.*, vol. i. (1867), p. 175.

§ G. Behrend, "Ueber Trichomycosis nodosa (Juhel-Rénoy)," *Berlin klin. Wochensch.*, 1890, No. 21. Full abstract in *Ann. de Derm. et de Syph.*, vol. i. (1890), p. 829.

‖ *Lancet*, vol. i. (1879), p. 190, with woodcut.

outline of the hair irregular, and was dark brown, dull, and opaque; it began some little distance from the root, which was quite healthy, and destroyed the elasticity of the hair, making some of them break off short, and others split. Under the microscope, the nodules were seen for the most part simply to ensheath the hair; but in some hairs, the growth had evidently penetrated below the surface,

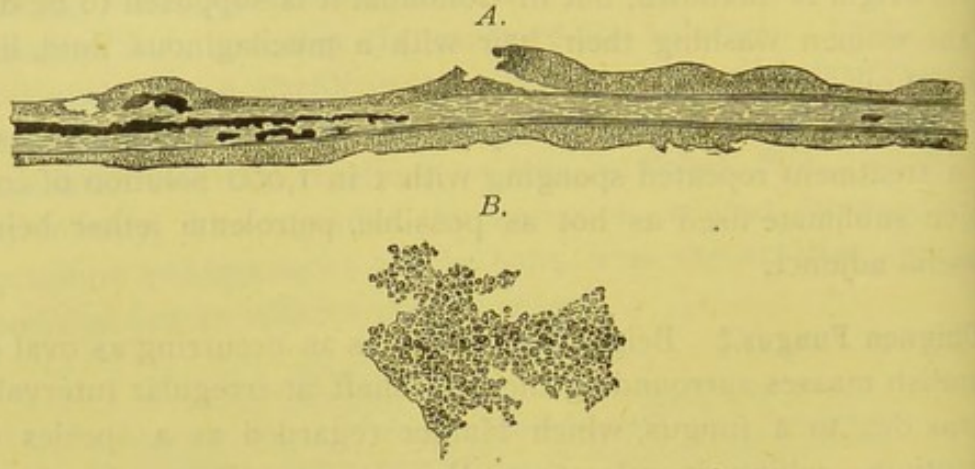

Fig. 71.—Tinea nodosa from moustache.

A. With low power, showing incrustation on the shaft of the hair.
B. Small portion of incrustation with higher power. × about 300.

and where the hair was split, to enclose each portion. When disintegrated, and viewed with a higher power, the concretion was seen to be composed of fungus spores, somewhat smaller than those of tinea tonsurans, as in Cheadle's case. Possibly Thin's* case of parasitic affection of the moustache is the same disease. Shaving or clipping close for some time is the only remedy.

Fig. 72.—Portion of internal root sheath adherent to shaft—the so-called "hair-eater."

Epithelial fragments, probably portions of the internal root sheath, sometimes adhere to the shaft of the hair as it grows up, and look like concretions. J. C. White of Boston informs me that it is common in America in association with alopecia furfuracea, and is erroneously thought to be the cause of the loss of hair; hence the popular name of "**hair-eaters.**"

Plica, which may be defined as entangling of the hair, occupied

Lancet, November 4th, 1882.

at one time a comparatively important place in works on skin diseases, and Alibert * devotes five plates to depicting various forms of it, and gives elaborate descriptions of the condition; but since the mysterious plica polonica was proved to be nothing more than the product of neglect and the matting due to inflammatory exudation, excited by innumerable pediculi, agglutinating the hair together, the term is scarcely mentioned in dermatological works. There appears, however, to be a rare form, which seems entitled to the name of *neuropathic plica*. Two cases are all that I know of, one reported by J. F. Le Page,† and the other in a Hindoo by D. B. Pestonji.‡ Both occurred in young women, and in both it came on after washing the hair in warm water, one in a few minutes, and the other after two hours. The hair was drawn up into a hard, tangled lump impossible to unravel, limited to the right side in Le Page's patient, who had very long hair, and in Pestonji's case to the back of the head, where on each side was an elongated mass very hard and firm, like a rope, and about the size of the fist. There was no reason to believe that it was an imposture, and the Hindoo woman cut the lumps off herself and threw them away. Le Page found the most contracted hairs flattened. Stellwagoa § also reports a case of plica in a woman.

FOLLICULITIS.

Inflammation of the follicle—or, as it more frequently really is, perifolliculitis—is very common in some form or other. It varies greatly in degree, being sometimes clinically but little more than congestion, at others so severe as to produce suppurative destruction of the follicle. Some of the milder forms of inflammation have already been discussed under the group of lichens, others under eczema and pityriasis rubra pilaris, and those forms which occur en plaques under the conglomerative pustular perifolliculitis of Leloir and others. They are so diverse in their etiology, symptomatology, and pathology, and of many forms we know so little, that satisfactory classification is at present not practicable, though a very

* Alibert's *Atlas*, 1st ed., plates vi. to x.

† *Brit. Med. Jour.*, January 26th, 1884, p. 160. His specimen is in the College of Surgeons' Museum.

‡ *Lancet*, September 3rd, 1885.

§ *Amer. Jour. Med. Sci.*, December 1892. It occupied a dollar-sized area above the nape, grew to four feet long in twelve years, but its mode of onset was unknown.

praiseworthy attempt has been made by Brocq * in this direction. Here only three forms will be discussed: two rare affections, folliculitis decalvans and dermatitis papillaris capillitii, and the more common sycosis.

FOLLICULITIS DECALVANS.

Quinquaud † has described a chronic folliculitis of the hairy parts, especially of the scalp, which leads to a cicatricial alopecia. Lailler and his pupil Robert ‡ have independently described the same affection under the title "acné décalvante," and Besnier as "alopécies cicatricielles innominées." Cases of this kind have been hitherto confounded with alopecia areata.

The patches are about the size of a shilling, irregular in outline, and almost smooth and polished, but with some granular points at the periphery, and red points on the white, atrophied, cicatricially depressed surface. At the periphery are folliculitic lesions, pustular, papular, or simply erythematous. Histologically, the changes were chiefly perifollicular, and, besides pus cocci, others in pairs and fours were found which Quinquaud regarded as special. The treatment Quinquaud recommends is to wash the head thoroughly, then for ten days paint tincture of iodine on and round the patches, and apply every morning a lotion of perchloride of mercury gr. 1, biniodide of mercury gr. $\frac{1}{6}$, alcohol ʒj, distilled water ℥j. This is of course to stop the disease from spreading. The hair cannot be restored.

DERMATITIS PAPILLARIS CAPILLITII.

Synonym.—Acne keloid or Acné chéloïdienne (Bazin).

This disease is only placed here until its nosological position is better known.

Under this lengthy name Kaposi § describes a very rare disease, which he says is not a sycosis framboesiformis, ‖ as Hebra thought it to be, as it does not commence in the follicles, and has nothing to do with syphilis, but is an idiopathic inflammatory process, commencing on the hairy border on the back of the neck, and

* Second ed., 1892; article "Folliculites et périfolliculites," p. 283.

† *Musée Hôpital St. Louis, Moulage* 1293.

‡ *Thèse de Paris*, Steinheil, 1889, with photograph.

§ Kaposi, 2nd ed., p. 485, and his *Atlas of Skin Syphilis*, part iii., plate lxvi.

‖ Hebra's *Atlas*, Heft x., Tafel 3, fig. 1.

spreading upwards towards the vertex, to which it was confined in one case.

Symptoms.—It begins as pin's-head-sized papules, at first isolated, but soon becoming thickly crowded together, and developing in the occipital region into enormously vascular papillomatous vegetations, two or three centimetres high, and made up of granulation tissue. They are crusted, bleed easily, and exude from between the papillæ a stinking secretion, while here and there, by the formation of intercurrent subcutaneous abscesses, they are partially undermined and destroyed. In the course of years they shrink, changing into a sclerotic connective tissue, and finally there is extensive atrophy of the hair follicles and baldness in some parts, and in others, tufts of hair projecting through the hypertrophied scar tissue (**acne keloid**). It is only in this final stage that cases have been recorded in this country, by Morrant Baker,* Roger Williams,† Eve,‡ and one case has come under my own observation, as mentioned under keloid; probably this is the outcome of more than one kind of antecedent lesions. According to the man's statement, my own case was a sequel of boils.

Kaposi identifies this disease with Alibert's pian ruboïde,§ the case figured being that of a previously healthy young man, in whom pustules suddenly appeared on the upper lip and vertex. Others soon followed, itched intensely, and, either spontaneously or from scratching, the affection spread rapidly all over the scalp, both lips, the ears, pubes, and genitals. There was profuse and offensive otorrhœa and rhinorrhœa; the scalp was swollen and covered with fungating, framboesiform vegetations, with sanious fœtid discharge; and the patient died in six months from marasmus and colliquative diarrhœa. Post mortem, the viscera were healthy, but there were large tumours on the sides of the larynx, and also on the palate and nasal fossæ. Alibert considers his case an extreme case of yaws, and certainly it does not, in my opinion, at all accord with Kaposi's description of his disease, which is apparently limited to the hairy scalp, and does not appear to be

* *Path. Trans.*, vol. xxxiii., p. 367, with coloured plate.

† Williams' case is in vol. xxxv. (1884), p. 397, with histological plate.

‡ *Illus. Med. News*, June 8th, 1889, with coloured plate. Fox and Heitzmann in America have also met with acne keloid.

§ *Atlas*, 1814, plate xxxv., case described p. 156 and post mortem p. 164. Rayer copies a portion of this plate into his own atlas, under the title of "Sycosis Capillitii."

dangerous to life. An interesting case of this class is one reported by Hervouet* of Nantes.

SYCOSIS.

Deriv.—σύκωσις, fig-like, from σῦκον, a fig.

Synonyms.—Acne mentagra; Ficosis; Lichen menti; Folliculitis Barbæ; *Fr.*, Sycosis non-parasitaire; *Ger.*, Bartfinne.

Definition.—Chronic primary folliculitis of the hairy parts of the face, especially of the beard, due to microbic infection.

Formerly sycosis was divided into non-parasitic and parasitic sycosis, the latter, or tinea sycosis, representing the inflammation excited by the trichophyton tonsurans fungus. Modern research has, however, shown that the so-called non-parasitic form is also due to an organism, but belonging to the schizomycetes instead of to the hyphomycetes, and we have therefore schizomycetic and hyphomycetic sycosis, or, as Unna puts it, coccogenic and hyphogenic sycosis, to which he adds the bacillogenic form of Tommasoli. Only the coccogenic form is considered here, and this form is intended when sycosis is spoken of without qualification. Tinea sycosis is described with the other fungous diseases.

Sycosis is not a common disease, one in three hundred being the proportion according to Hebra, but in my experience one in one hundred and fifty is nearer the mark. The name is conventionally limited to primary folliculitis of the beard, whiskers, or moustache; but it may also attack the eyebrows, the lashes, or vibrissæ of the nose; and a precisely similar inflammation may occur in the coarse hairs of the axillæ and pubes of both sexes; on the scalp, however, folliculitis is always secondary to an eczematous inflammation, which clears up in the skin between the follicles, leaving them still inflamed.

Symptoms.—Sycosis varies greatly in extent and severity. Papules, nodules, or pustules may be present, and each is traversed by a hair or hairs, in the centre. Beginning commonly in the beard, acneiform, hemispherical papules or nodules, soon developing into pustules, form round the hairs. At first only few and isolated, they gradually increase in number and aggregation; and while, on the one hand, the disease may be limited to a single

* *Ann. de Derm. et de Syph.*, vol. iv. (1883), p. 421.

patch, in other cases, by the junction of multiple foci and peripheral accretion, wide areas are involved.

The hairs are at first firmly seated, are pulled out with pain and difficulty, and even in the papular stage, the root sheaths, on removal, are seen to be swollen by serum imbibition quite down to the end. As the suppuration becomes more free, they are loosened and easily removed. In cases of moderate severity, the pus may dry into closely adherent, thin, brown or yellow crusts, each spitted, so to speak, by its central hair; while in severe cases, the pustules are so thickly crowded that they coalesce into infiltrations, which may fungate,* and are covered with purulent crusts. When these are removed, the hairs are left standing in shallow pits produced by the loss of their root sheaths, or when the process goes a little further, the follicle is destroyed, the hair falls out, and cicatrisation and permanent loss of hair ensue. If untreated, the process invades fresh follicles, until the whole of the hairy part of the face is affected, but it never travels beyond it. In severe cases, it may reach all over in weeks or months; in others of less intensity, the whole extent is not travelled over for a long time, the process sometimes lasting, with remissions and exacerbations, from ten to thirty years. In these chronic cases, there is a general infiltration and redness, partially covered with small white scales, with a varying number of pustules interspersed, according to whether there is a remission in, or renewal of, the activity of the inflammation. There is then always more or less scarring from previous attacks, and occasionally keloid ensues in the cicatrices.

Besides the lesions that have been described, swellings the size of a pea to a finger-nail are often seen here and there. They are soft and fluctuating, and when the hairs in them are removed, give exit to pus by the numerous openings produced by the epilation. The hairs may also come out spontaneously, previously to the tubercle breaking down. Even when the disease is apparently cured, relapses are frequent, especially when the beard has been allowed to grow too soon.

Variations.—In old-standing cases, the intensity of the inflammation sometimes subsides, and there is only left a chronic red patch more or less covered with white scales and an occasional

* It is this condition that first earned for it the name of sycosis, from its resemblance to the inside of a fig. It is more common in the tinea form.

pustule from time to time. At the commencement of the disease also mild cases of this type may be sometimes seen, but usually the pustules are more numerous. As will be described under the pathology, two different organisms may produce similar eruptions of this mild type.

Milton more than thirty years ago applied the term **lupoid sycosis** to a variety of scar-leaving folliculitis, which generally begins at the upper part of the whiskers and slowly travels downwards with a narrow erythematous margin, with marked infiltration, followed by cicatricial atrophy and destruction of the hair follicles. The lesions may be papular, vesicular, or pustular, or when the intensity of the inflammation has subsided, only erythematous and scaly, with more or less infiltration. After a time, the process comes to a standstill on one side, but may start again on the other. Brocq, evidently unaware of Milton's meagre description, has described a similar condition as *sycosis lupoïde*, and Unna as *ulerythema sycosiforme*. Unna lays stress on the primarily vesicular character of the affection, the sharp limitation of the interfollicular erythema from the healthy parts, and the superficiality, chronicity, and rebelliousness of the inflammation, and the final patchy character of the scar formation, as distinguishing characters from ordinary sycosis.

Etiology.—The disease being limited to the beard and whiskers, obviously only adult males are liable to it, but the analogous folliculitis of other regions may occur in adults of both sexes; but it is never so obstinate as in the face. It is common on the upper lip in those who are subject to nasal catarrh, doubtless from pus contamination. Brooke contends that it is contagious, and frequently conveyed by the shaving brush, especially by those barbers who have to do with the unwashed classes. My own impression is that it is certainly more frequent in those who allow the beard to grow than in those who shave, and while agreeing with Brooke that there is a form of sycosis communicated by barbers very frequently, this is usually a tinea sycosis, which in mild forms is very common in my opinion, the idea that it is rare having arisen from restricting the term to the more severe kerion forms of it. At the same time, I would not deny the possibility of ordinary sycosis being conveyed from one to another.

Pathology.—The disease, as already stated, is an inflammation in and around the follicles. The way in which it spreads from

follicle to follicle suggests the presence of a micro-organism, but Bockhart was the first to demonstrate that pus cocci (staphylococcus aureus et albus), by their presence in and round the follicles, could and did excite a sycosis of the characters described; hence the appropriateness of Unna's name coccogenic, as opposed to hyphogenic (tinea) sycosis. Tommasoli has also obtained a special organism, which he and Unna have called bacillus sycosiferus fœtidus, in a case which appeared to be ordinary coccogenic sycosis of a mild type. Tommasoli proved his point by obtaining typical sycosis by inoculating pure cultures on his own skin and that of rabbits.

The anatomy has been investigated by Wertheim, who showed that each follicle was converted into a small abscess, and more recently Robinson* of New York has examined skin from the living subject, and found that primarily the inflammation was perifollicular, exactly like other vascular connective-tissue inflammations. Thence serum and even the other products of inflammation penetrate the follicle, whose cell elements swell and disintegrate. The pus infiltration is greatest at the fundus, decreasing from thence upwards. The papilla is comparatively seldom destroyed. Pus reaches the surface by breaking through the epidermis round the follicle; and when the hair is pulled out the whole cavity is seen to be lined with pus cells. The sebaceous glands are affected after the hair follicle, while the sweat glands are only occasionally involved.

Diagnosis.—A chronic inflammatory disease, limited to the hairy region of the face, and beginning in the follicles, can only be sycosis. The diseases most like it are eczema, tinea sycosis, and tertiary syphilis.

Eczema resembles the slighter and more chronic cases of sycosis, but may be distinguished by the following points. The inflammation is seldom exclusively in the hairy region in eczema throughout the whole course, though it may be so. When it comes first under observation, a history or evidence of inflammation in the neighbourhood is generally obtainable. The inflammation does not begin in the follicles, but in all parts of the cutis, and, at first, is more superficial than sycosis. This may be shown by pulling out a few hairs, when in some of them, the root sheath is only swollen by serum imbibition at its upper part, while in sycosis, it is always

* *New York Med. Jour.*, August and September 1877.

swollen to the end. The inflammation also seldom approaches in intensity that of severe sycosis. When an eczema of these parts has lasted some time, the inflammation clears up between the follicles, leaving them still inflamed. The two conditions then become indistinguishable, except that the history may show that this eczematous folliculitis is secondary to a more general inflammation, but the distinction at this stage is of no practical importance, as the local treatment would be the same.

Between sycosis and *tinea sycosis* the points of difference are: the tinea is more acute, and frequently begins with a circinate, circumscribed, scaly patch, but subsequently the suppuration is very free; the affected part is lumpy from the numerous pustules and nodules; the hairs pull out easily and without pain, and their nutrition is affected early, so that they are brittle, dull, and even bent or twisted; multiple foci are much more common, and are seldom seen in the coccogenic form except in old cases. Such conditions should lead to microscopic examination, when the fungus can be discovered. Severe forms are much rarer than its non-parasitic prototype.

Ulcerating tertiary syphilides may resemble severe sycosis. When the crusts are removed—and diagnosis without this is always liable to error—the ulceration is apparent and generally circinate in outline. The inflammation is not simply follicular, and evidence of past or present specific lesions elsewhere can generally be obtained.

The symptoms considered by Unna to differentiate lupoid sycosis or ulerythema sycosiforme have been given under that form of the disease.

Prognosis.—Sycosis is never dangerous, but often very obstinate and liable to recur. A guarded opinion as to *bonâ-fide* cure in old-standing cases should always be given, but considerable improvement can always be promised.

Treatment.—Internal treatment is advocated by some authors, chiefly tonics, cod-liver oil, the mineral acids, and strychnia; and Tilbury Fox thought highly of Donovan's solution where there was much infiltration. For my own part, I regard sycosis as a local affection, in which local treatment is all that is necessary.

Shaving and epilation are most important preliminary measures, and if not practised, either from the unwillingness of the patient to part with his beard, or other reason, the treatment will be much less effective and more prolonged. Although the patient at first

shrinks from the idea of shaving over such a sore surface, in moderate cases, if the hairs be first closely clipped, the crusts softened with pledgets of lint dipped in olive oil before removal, a skilful barber gives very little pain, and after the first time, the patient does not mind it. In severe cases, it is not necessary to shave over the worst part, as the hairs are loosened and can easily be pulled out; but in the moderate cases, after shaving, the hairs on the inflamed part may be allowed to grow for a day or two, and then they should be systematically epilated, clearing a quarter to half a square inch daily; but the process is undoubtedly painful. Not only should shaving be kept up during the treatment, but continued for at least twelve months after apparent cure, or recurrence is probable. In very acute cases, after the part has been cleaned, soothing applications, such as the oleate of zinc ointment, spread upon strips of linen, should be bound on, or an ointment of iodoform gr. 5 to ℥j; or europhen gr. 5 to gr. 10 may be substituted. Afterwards, or in cases of less severity, the applications that suit most cases are 1 or 2 per cent. of oleate of mercury; a weak sulphur ointment, about ℈j to the ℥j; or the diluted nitrate of mercury ointment: one or other of these is generally successful. Shaving with the Krankenheil Spring soap No. 3, or Calvert's carbolic shaving stick, and leaving the lather on afterwards at night, is a useful adjunct.

Whatever treatment is adopted, perseverance, with unremitting care, for a long period, is essential for a complete cure. The more heroic method recommended by Veiel of Cannstadt and other German authors—*e.g.*, Wilkinson's ointment (Hebra)—will rarely be submitted to in this country. Where there is much infiltration, as in very chronic cases, a small area at a time may be painted with liquor potassæ and washed off in half a minute and a zinc ointment applied. This is sometimes a very effectual treatment.

*D. DISEASES OF THE NAILS.**

The morbid changes observed in the nail substance are, except in the case of parasitic invasion, when the matrix is only second-

* *Literature.*—Shoemaker, "Disease of the Nail: a Large Number of Abstracts and References to Interesting Cases," *Amer. Jour. Cut. and Gen.-Ur. Dis.*, vol. viii., 1890. Hutchinson's *Archives*, vol. ii. (1891), p. 237.

arily affected, the direct or indirect result of diseased conditions of the matrix, which is subject to the same pathological conditions as the other tissues, such as inflammation, acute or chronic, and trophic changes generally. The nail substance, as a consequence, may undergo increase in quantity, hyperplasia or hypertrophy, diminution, aplasia or atrophy, and the shape, colour, and texture may be altered.

Symptomatology.—It will be convenient to explain here the various terms which are used in the description of abnormalities of the nails, irrespective of their origin.

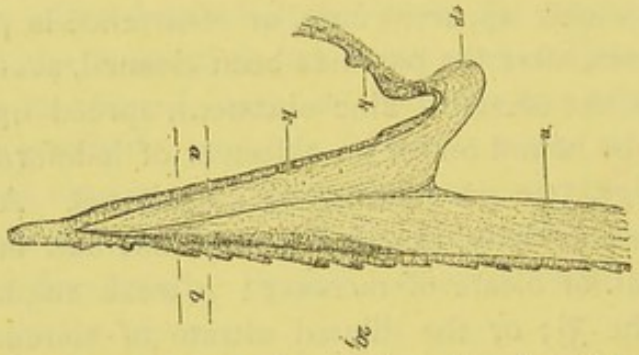

Fig. 73.—Longitudinal section through the nail, and nail fold of a child of three years old (Unna). × 20.

n, nail plate; *k*, *k*, granular layer of roof of nail fold; *ep*, eponychium.

Pterygium (πτέρυξ, a wing) means the growth over the nail of the fold of skin which normally exists in a slight degree where the proximal end of the nail joins the finger.

Onychia (ὄνυξ, the nail) is the term used for inflammation of the matrix, whether idiopathic, traumatic, syphilitic, or otherwise secondary. It is not generally applied to chronic inflammations. Typical onychia maligna is usually single, often associated with ophthalmia tarsi and other signs of struma, and, according to E. v. Meyer, is due to direct tubercular infection on some injury, often very slight. A more chronic and less severe form may be occasionally met with. In a patient of mine, a woman æt. forty-seven, subject to rheumatism, but otherwise well, suppurative inflammation of the matrix had attacked one finger after another, first of the right hand, and was beginning in the left ring-finger; after being bad for eight months, the first attacked, that of the right little finger, healed. In the more acute onychia maligna the inflammation is often phlegmonous, and then there is intense redness over the

base of the nail, going on to lividity, heat, and throbbing pain; the nail itself is discoloured by the inflammatory effusion beneath it; suppuration ensues, with sanious discharge; the nail is lifted from its bed, becoming thickened, opaque, and discoloured, and is often completely thrown off, exposing a sloughy, easily bleeding surface. This may gradually clear up and heal, and an imperfect nail replace the old, or the inflammation may spread to adjacent tissues, and eventually to the lymphatics, and the condition known as **paronychia**, or whitlow, in its worst form be produced. It is one of the most striking symptoms of Morvan's disease.

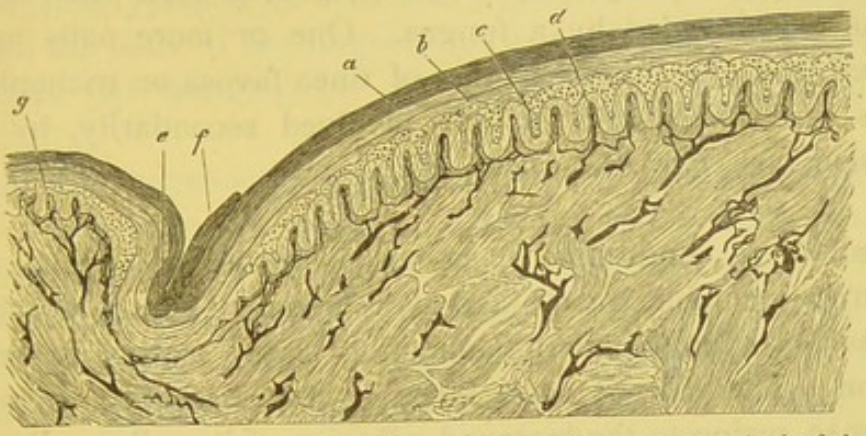

Fig. 74.—Transverse section of a nail, made through the proper bed of the nail (Biesiadecki).

a, nail; *b*, loose horny layer beneath it; *c*, mucous layer; *d*, transversely divided nail ridges, with injected blood vessels; *e*, nail fold destitute of papillæ; *f*, the horny layer of the nail fold which has been deposited upon the nail; *g*, papillæ of the skin of the back of the finger.

The various forms of paronychia are described in all surgical manuals, and only the variety produced by "ingrowing toe-nail" will be here alluded to. This is produced by a spontaneous growth of the nail into the tissues, or more frequently by pressure or injury. Inflammation ensues at one or other upper angle of the nail, and a tender, granulating, discharging surface is produced, which grows over the nail, and may go on for an indefinite time, unless suitably treated. The inner angle of the big toe is the usual position for this troublesome affection.

Onychauxis (ὄνυξ and αὔξω, to grow) is synonymous with increased growth, or hypertrophy, of the nail, whether simple or, as generally happens, with alteration in texture, colour, and shape.

When the growth is chiefly forward, the nail is apt to become bent and twisted, sometimes spirally, like a ram's horn. This condition is termed **onychogryphosis** (ὄνυξ and γρυπός, curved). The nail is much thickened, strongly ridged both transversely and longitudinally, shining, but more or less discoloured, of a yellow or brownish hue. Underneath, there is an accumulation of softened, often evil-smelling epithelium. It is generally limited to the toes, especially the great toe, and is rarely seen on the fingers. Nails of this kind may be three inches or more long, and of great thickness.

Onychomycosis (ὄνυξ and μύκης, a fungus) is used when the nail substance is invaded by a fungus. One or more nails may be attacked, and the fungus is that of tinea favosa or trichophytina. In this case, the matrix is only involved secondarily, by direct extension (see Parasitic Diseases).

Of all these conditions, a moderate degree of onychauxis or hypertrophy combined with a certain amount of atrophic change, the result of symptomatic inflammation of the matrix, is the most common. The nail becomes more or less thickened, its texture less dense, owing to the loosened adhesion of its cellular elements, the surface loses its lustre, discoloration of a dull yellowish hue ensues, and the surface may be more or less irregular from imperfect growth, and is furrowed and pitted in various ways. These conditions are most commonly the result of eczema, psoriasis, syphilis, or the trichophyton fungus.

Of **atrophic** conditions,—furrowing, discoloration, and the pitted or worm-eaten appearance already alluded to, and white spots, are the most common symptoms. The nail, however, may be thinned and softened, or split, brittle, and crumbling. A good example of the latter is seen in some cases of tuberculated leprosy, where the original, perhaps thickened, nails may be replaced by a few dirty greenish, horny flakes on the stumpy ends of the fingers. Sometimes these changes are due to local trophic defects of the matrix of the nails themselves, at others to some more distant nerve affection, *e.g.*, in neuritis as in "Glossy Skin" (see that disease). In partial destruction of the nerve supplying the digit, painful ulceration of the matrix may occur.

Etiology.—The causes of abnormalities of the nail are—

1. Congenital. (*a*) Supernumerary nails growing either on a

supernumerary digit, or two on one digit, or growing in some abnormal position, as on the middle of the scapula (Tulpius). It may be added, that supernumerary nails may be acquired, as on the stumps of amputated fingers, or as I have seen in leprosy, where the terminal phalanx had been lost. (*b*) Congenital onychauxis, when the digit on which it grows is abnormally large, *e.g.*, a patient of mine had congenital absence of the two middle fingers of the hand; the thumb and first finger were of enormous size, and the nails corresponded. A more common cause is ichthyosis (see that disease). An interesting case of onychauxis, with onychogryphosis, is recorded by Sympson* of Lincoln, in which all the nails of the fingers and toes projected upwards from the matrix like horny pegs. Congenital absence or atrophy is rare.

2. Acquired onychauxis may occur from (*a*) unrestrained growth, of which onychogryphosis is an example, and is seen chiefly in bedridden and elderly people, or others who cannot or will not give their nails the requisite attention; (*b*) from elephantiasis arabum and other causes of obstructed circulation, *e.g.*, lateral pressure of tight boots. (*c*) Inflammation of the matrix, acute or chronic, whether idiopathic from injury, mechanical or toxic, parasitic or symptomatic.

Acute idiopathic inflammations have already been treated of under onychia. The nails are often accidentally involved in acute inflammations, such as erythema iris, pemphigus, yaws (Nichols), the inflammation taking place beneath the nail and loosening its attachments more or less.

The chronic inflammations are generally the result of eczema, psoriasis, pityriasis rubra, lichen ruber, and in all these there is more or less discoloration and thickening as a rule, often combined with pitting; but when they take an acute form, some thinning may be produced, as often happens in pityriasis rubra. The most marked instance of thinning and softening is that which occurs in pemphigus foliaceus, a disease which is chronic in duration, but acute in its manifestations. Other causes of atrophy are the neurotic conditions, *e.g.*, neuritis, already alluded to, syphilis, and leprosy. Besides the vegetable parasites of favus and ringworm, animal parasites may also affect the nail, as in the worst or Norwegian form of itch, never seen in this country, the chigoe

* *Lancet*, April 14th, 1888.

or pulex penetrans, of the West Indies, and some other tropical insects.

The descriptions of these symptomatic affections of the nails are given under the various diseases which give rise to them. They are rarely congenital, but may be apparently idiopathic and localised in one or affect several nails, or it may be a part of the general malnutrition, and sometimes an early sign of nervous exhaustion. It is seldom possible from merely inspecting the nails to infer the cause. The diagnosis has to be made from the presence of eruptions elsewhere, or from other collateral circumstances.

Shedding the Nails occurs from many causes, chiefly of a neurotic character. They may all be shed, or only those of certain fingers and toes. The great toe is the one most frequently affected. Shedding of the nails also occurs in the universal neurotic form of alopecia areata, in syphilis, in diabetes mellitus, sometimes, without apparent cause, and Falcone* of Naples records a case of severe hysteria in which the nails were shed, preceded by tingling and suppuration of the matrix. Shedding of the great toe-nail occurs sometimes in the course of locomotor ataxy, in some cases preceded by subungual ecchymosis.

In an anomalous case of recurrent erythematous inflammation in a boy of four, all the hair and nails were shed, and regrowth was very feeble and temporary. The cutaneous inflammation did not affect the scalp, but the ends of the fingers.

R. Hilbert† reports a case where for four years in succession, and always in September, the great toe-nails were shed without antecedent symptoms or known cause, except that before the first attack he had had a difficult mountain tour.

Unna‡ describes a peculiar case in which longitudinal tumours appeared in a circumscribed part of the nail, especially in the median line, over which the nail substance was raised up, became gradually atrophied, split, and the tumour was thus exposed. It was of chronic origin and due to venous stasis, and was sometimes associated with symptoms of deeper venous stasis of the whole

* *Deutsch. med. Wochensch.*, October 14th, 1886; quoted in *Lancet*, October 30th, 1886.

† Quoted by Shoemaker, *loc. cit.*

‡ *Viertelj. f. Derm. u. Syph.*, vol. ix. (1882), p. 3, with woodcut.

finger end. Treatment was of small avail, but the condition underwent spontaneous improvement and healing. He recognised three stages: first, great longitudinal ridges with decreased cohesion of the nail cells; secondly, reddish, longitudinal swellings; and thirdly, complete separation of the nail into two halves.

The nails also undergo more or less change in connection with more general affections. Thus in "clubbed fingers" from obstruction to the circulation, as in many chronic cardiac and lung affections, the nails become rounded as well as of a bluish tinge. In hemiplegia, growth is arrested.

Eichorst records a case of pernicious anæmia in which the nails were thickened, fissured, and crumbled at their free ends.

Spoon Nails, in which the nail is thinned and concave from side to side with the edges everted, and with hollowing to a less degree, sometimes antero-posteriorly, have been observed in some wasting diseases, but also there are a few cases on record where the etiology is obscure. It begins on one finger, and gradually involves the others. I have not heard of it affecting the toes. In a woman of fifty under my care, it came on along with lichen planus of the limbs about four years previously. Brindley James relates a case of a girl of twenty in which there was no apparent cause. Coleman and Taylor record a case in a boy of eight also without apparent cause, but the brother had Raynaud's disease. T. Acland relates a case of clubbing of the fingers, with separation of the anterior portion of all the nails from the matrix, which he thought was due to Raynaud's disease, but without any strong reason for the supposition. Of course in undoubted Raynaud's disease damage to the nails would naturally result. I have seen separation from the matrix even down to the lunula several times without any suspicion of Raynaud's disease.

Reedy Nails, in which the natural longitudinal striæ become very marked, apparently from wasting of the intermediate portion, were regarded by Fothergill* as a sign of gout; but they are very common in old persons who show no other sign of gout, and are, I believe, only one of many other senile atrophic changes.

Transverse Furrows show that the nails also take their share in severe illness—*e.g.*, in fevers, choleraic diarrhœa, pneumonia, etc., there is deficient growth, and after recovery, a furrow remains as a

* *Med. Soc. Trans.*, vol. ix. (1886), p. 25.

memento until it has grown to the end of the finger. In relapsing typhoid and similar conditions, more than one furrow may be present, being the record as well as the consequence of the illness. Wilks relates an interesting case in which two furrows recorded sea-sickness on August 28th and October 8th respectively. A curious condition, in which all the nails of the fingers, but not the toes, had a central longitudinal ridge, with a parallel groove on each side, came under my notice in a boy of twelve. The nail had lost its polished surface, being rough and fibrous-looking; the substance was thinned, and had gradually become soft. No cause could be discovered, except that the hands were very cold. Possibly this was a minor degree of the condition above described by Unna.

Tylosis of the matrix I have once observed in a cowman æt. twenty-three. The nail was raised from its bed by a homogeneous plate of horny epidermis, which filled up the usual interval between the nail and finger end. It imparted a dirty yellow colour to the anterior two-thirds of the nail. It appeared to begin at the free end, and had grown inwards like a wedge. The toe-nails were not affected. The man had hyperidrosis of the palms and seborrhœa capitis. Le Fort met with two cases affecting the toe-nails.

White nails may occur in spots, bands, and in very rare instances all over. *White spots* are common, especially in young people; their mechanical cause is the presence of air between the lamellæ of the affected part, but their origin is unknown. In some cases, they can be shown to be part of trophic changes. Bielschowsky* records a case of a man with peripheral neuritis, in whom white spots appeared at the lower part of the finger-nails, rapidly grew, and in three weeks coalesced into a band across each nail a millimetre wide. The toes were not affected. These bands or spots sometimes are a milder expression of trophic defect than the furrows above described. Dr. Longstreth† suffered from relapsing fever, and a separate band bore witness to each relapse. A case is recorded by Morison‡ of Baltimore, in which transverse bars of white, alternating with the normal colour, appeared without

* Quoted in Supplement *Brit. Med. Jour.*, January 17th, 1891.

† Quoted by Shoemaker, *loc. cit.*

‡ "Leucopathia Unguium," *Viertelj. f. Derm. u. Syph.*, vol. xv. (1888), p. 3, with plate.

ascertainable cause on the finger-nails of a young lady, and remained unchanged for months. Giovannini and Unna * both record instances of complete whitening of the nails of the hands only, both in men. Giovannini's case began at the age of twelve, after typhoid fever; the hair was unaffected. Unna's case was probably congenital, and there was a partial condition of ringed hair also present.

Diagnosis.—The diagnosis of the origin of the nail change can seldom be made from the naked eye appearances of the nails themselves. If due to a diathetic condition, such as gout, syphilis, or leprosy, it is by the evidence of these diseases elsewhere that the cause of the disease of the nails is inferred. The same is true for nail disease as a part of other cutaneous inflammations, eczema, psoriasis, tinea tonsurans, etc. It is very rare for the nail affections to be the sole manifestations of such diseases, and when they are so, the diagnosis is little more than guess-work, unless there is a history of previous cutaneous disease. Where the possibility of a fungous origin is present, microscopical examination of nail scrapings, after soaking them in acetic acid, is essential, but it is not always easy to detect the spores and mycelium in nails only slightly affected.

Treatment.—Only the treatment of those nail affections which are not alluded to elsewhere is described here.

In severe *onychia*, the tension may be relieved by incisions and removal of the nail, and the surface cleaned up by iodoform or iodol and wet boric lint under oiled silk. Internally, the treatment must be a supporting one—quinine in full doses, a generous diet, port wine if necessary, and a bracing climate.

Onychogryphosis only requires that the superfluous part of the nail be removed, after softening by soaking in hot water.

In *in-growing toe-nail*, the nail should be softened, scraped thin in the centre, the unhealthy granulations destroyed with acid nitrate of mercury, the sharp edge of the nail removed, and the raw surface treated with wet lint under oiled silk, applied with pressure, a part being pushed between the nail and the skin. In some cases, avulsion of the nail is required, and in all cases, properly made boots should be used, or the evil will recur. Scott-Battam's treatment is a good one. "First wash and dry the parts, and then

* Giovannini, "Canities Unguium"; Unna, "Leuconychia and Leucotrychia,"—both in *International Atlas*, plate xix.

thoroughly rub the granulations with solid nitrate of silver. Since the introduction of cocaine this proceeding can be rendered practically painless. Next cut small pieces of fine Turkey sponge, and press them well down between the nail and the granulations, inserting a small piece beneath the inner free edge of the nail. Pressing this sponge pad downward and inward, fix it in place by winding a long, narrow strip of plaster round and round the toe, commencing from the outer side, the aim being to compress the granulations, and draw them as far as possible from the nail. A soft, easy shoe should now be worn, and patients can pursue their ordinary avocations without risk. Some aching pain often follows, but this is soon succeeded by a considerable feeling of relief.

"The dressing should be removed and the process repeated in two days' time. A sulcus will then have formed between the flesh and the nail, and on removing the crust formed by the nitrate of silver, a healthy ulcer will be found to have replaced the exuberant granulations.

"On the fourth or fifth day, after well soaking the toe, apply cocaine, and endeavour to insert a small piece of sponge beneath the edge of the nail, which is now more fully exposed, or a piece can be removed with fine scissors. A mixture of iodoform and alum is now dusted in, and the sponge compress applied as before. In a week or ten days' time the process is repeated, especially if the ulcer is not healed. After a similar interval, the raw, tender surface will be found to be hard and painless. It is well to continue treatment a little longer, and the dressing can be worn for two or three weeks without discomfort."

In cases of *chronic onychauxis*, where the cause is not ascertainable, the same treatment as for chronic psoriasis of the matrix is generally successful, together with the administration of arsenic, or the remedies suitable for any departure from health which can be detected. One of the most generally useful for chronic onychitis is a salicylic acid ointment ʒss to ʒj to ℥j of lanolin c̄ oleo, spread on strips of linen, and bound closely on night and day, pushing the ointment well underneath the posterior nail fold. When the skin begins to peel, the ointment may be intermitted for a few days. Shoemaker strongly recommends oleate of tin gr. 20 to ʒj to ℥j of lard for cases of this kind. The nail is wrapped up in it as just described. A little carmine may be added to colour it. T. H. Irquhart also speaks well of it from experience on his own person.

CLASS IX.

PARASITICÆ—PARASITES.

A. VEGETABLE PARASITIC DISEASES.

THE diseases included in this class are due to the various members of the hyphomycetes or fungus family. They are :—

I. Favus : due to achorion Schönleinii.

II. Common ringworm : due to tinea trichophytina.

III. Tokelau ringworm : due to tinea imbricata.

IV. Mycetoma : due to chionyphe Carteri (?), one of the actinomyces.

V. Actinomycosis : due to actinomyces.

VI. Tinea versicolor : due to microsporon furfur.

VII. Erythrasma : due to microsporon minutissimum. Some think this is a micrococcus, and that it belongs therefore to the schizomycetes.

VIII. Pinta : disease of Mexico ; fungus unnamed.

Only the first two diseases affect the hair follicles as well as the rest of the skin.

Mycetoma and actinomycosis are not limited to the skin, but affect other tissues, and there is reason to believe that mycetoma is really a form of actinomycosis.

The last three diseases affect only the surface layers, and produce discoloration only.

In order to find the fungus, if merely for diagnosis, it is sufficient to wash the hairs in æther to remove the grease, and then soak them for a few minutes in acetic acid or liquor potassæ B.P., that is, a 6 per cent. solution of caustic potash, taking care if they are scales not to have too thick a layer, and if hairs, after soaking them in potash, to press them gently with the cover glass. A saturated solution of caustic potash in glycerine is another good medium, and except that the cover glass cannot be fixed, serves to

preserve the specimen for a long time. A power of from three to six hundred diameters is generally necessary. When a more complete examination is required, or it is desired to make a permanent preparation, Payne's modification of Bizzozero's method is one of the best.

1. Soak the scales in æther from a quarter to half an hour, to remove the fat.

2. Add a few drops of 50 per cent. acetic acid to the scales on a cover class or slide, and let the acid evaporate.

3. Colour by Gram's method, *i.e.*, first stain with a few drops of gentian violet solution in aniline water for five to thirty minutes, wash with absolute alcohol, then soak with Gram's iodine solution for one to five minutes, wash again with alcohol, and mount in chloroform or xylol solution of Canada balsam. This plan stains the fungus only. Balzer recommends eosine, which stains the epithelium, and not the fungus. I have obtained very good results with this plan after washing with æther and staining for a few minutes with an alcoholic solution of eosine, soaking the hairs in liquor potassæ for a few minutes, then in absolute alcohol, allowing that to evaporate and mounting in Canada balsam.

Another good plan is to stain the scales with a 1 per cent. alcoholic solution of hæmatoxylin, and then soak for a minute or two in acetic acid, one part in ten of distilled water. This removes the excess of stain, and if carefully done, leaves the fungus more stained than the scales. After placing in absolute alcohol, the preparation may be mounted in Canada balsam. If left too long in acetic acid, complete discoloration is produced.

For cultivation methods and their subsequent examinations, the paper by Unna* may be usefully referred to.

FAVUS.

(Lat. for honeycomb.)

Synonyms.—Honeycomb ringworm; Tinea favosa; Tinea vera; Tinea lupinosa; Porrigo lupinosa; Porrigo favosa; *Fr.*, Teigne faveuse; *Ger.*, Erbgrind.

* "Zur Untersuchungstechnik der Hyphomyceten," *Centralbl. f. Bakteriologie u. Parasitenkunde*, vol. xi. (1891), No. 1.

Definition.—A vegetable parasitic and contagious affection of the scalp and general body surface, characterised by sulphur-yellow, cup-shaped crusts embedded in the epidermis, and in hairy parts pierced by a hair.

This disease is extremely rare in England (1 in 2,000 in my practice), but is common in Scotland, and still more so in France* and Poland, where it is almost as common as tinea tonsurans is in this country. Its favourite seat is the scalp, but absolutely no part of the body surface is exempt from its attack, and it may even affect mucous membranes, such as the glans penis, and in one instance the mucous membrane of the stomach. It differs in aspect somewhat according to whether it attacks hairy or non-hairy parts of the body.

Symptoms.—It appears first on the scalp as a very small, sulphur-yellow disc, called a scutulum, embedded in the epidermis, and pierced by a hair. If, when it has attained to the size of a hemp seed, it is dug out and removed with its attached hair, the under surface is found to be smooth, convex, moist, and slightly greasy to the touch, while the upper surface is slightly concave, and mixed with the whitish epidermis scales, which also remain attached to the border like a collar. There is a depression left in the rete from which it has been dug out, but this is only due to compression of the cells, which soon swell and fill it out when the pressure has been removed, unless the crust has attained to some size and has been long there, or there may be serous exudation or even bleeding at the time of removal of the crust.

As the small disc enlarges, it projects at the periphery more than at the centre, and thus a cup-shaped depression is produced; still growing larger, it may reach to the size of a sixpence. These large crusts are relatively flatter and furrowed by concentric rings or variously fissured, or they may grow vertically more than peripherally, and thus form elevated, irregular, craggy masses, with a white centre, but the typical sulphur yellow shows at the periphery, unless blood-stained from scratching. After having attained its full development, varying much in extent and duration, but generally taking several months, it becomes paler and of a dirty yellowish white. The margin is elevated through the

* Feulard states that in France about one thousand conscripts, chiefly from the country districts, are annually rejected on account of favus, but that the number is gradually diminishing.

epidermic covering, and the whole shells off, either spontaneously or from some trifling friction, and the skin beneath, from the long-continued pressure, is left depressed, hairless, thin, white, and glistening; in short, an atrophic scar results.

The hair appears dry, lustreless, and brittle, and sometimes splits longitudinally, getting separated more or less from its root attachments, so that it falls out or is easily drawn out with portions of the root sheath attached; and the papillæ being often atrophied from pressure, no new hairs are regenerated, and the follicle becomes obliterated. Itching and a sense of fulness are the only symptoms complained of, but there is a peculiar, musty, straw-like or mousy odour, when the disease is at all extensive.

Variations.—Such is the course and development of a single scutulum (**F. lupinosa**), but in neglected cases, many may coalesce into an irregular mass, with a curvilinear border, indicating the component cups of which it is composed, and according to the shapes and aggregation, names were given in former days, but have now deservedly dropped into disuse. In such a case, all stages may be presented at the same time. On one part of the scalp, will be these masses, at another, isolated typical favus cups, or again, white, atrophic scars, with the skin, thin, shining, and stretched over the bones, and at intervals, thin tufts of hair whose follicles have escaped the general destruction. In the favus masses themselves, the hair is dull, dry, and dusty-looking, and easily removable, unless there remain a few unaffected, and therefore healthy hairs. Complications may arise, of which the most common is pediculosis, with its usual concomitants, eczema, impetigo contagiosa, and enlargement or even suppuration of cervical glands, etc.

Simon describes superficial erosion of the scalp from pressure of the favus masses, and others have described necrosis of the skull and favus ulcer; but since neither Hebra nor Kaposi have met with them, such conditions must be extremely rare, and it is probable that the ulcers are really only the pressure-pitting already described.

Favus is an essentially chronic disease, beginning in childhood, and lasting for many years; one of my cases, a German boy æt. fifteen, had had it since he was two years old, and Kaposi speaks of it lasting until the patient was forty years old or more—in fact, as long as there were any hair follicles remaining to be attacked;

in other cases, it spontaneously stops, leaving one or more bald patches.

On the non-hairy parts, while the scutula present exactly the same characters, variety, and development, there is often an additional feature, somewhat resembling tinea circinata, viz., a round, red, scaly patch, which develops into a circle with a paler, scaly centre and a red, elevated margin, smooth, papular, or vesicular. On the surface of the skin sometimes, several concentric circles form round a central favus cup, which has developed on the initial disc, or again, several circles coalesce and form a gyrate pattern round the crust or crusts, which may also be present on the margin ; when there are no crusts, the circles may disappear spontaneously, after growing to a varying degree. Favus of the free surface has generally, but not always, originated from the scalp. As a rule, when once it has commenced, it develops more rapidly than on the scalp; and the lanugo follicles being more superficial, there is a far greater chance of its spontaneous disappearance, but sometimes it persists for years (twenty years, Michel), and in long-standing cases, produces atrophic scarring, as on the scalp, though there is here also a better chance of the scar being eventually obliterated. When first inoculated, circles of herpetiform vesicles often form, the characteristic cups not appearing till a later period.

When neglected, it may extend over nearly the whole of the body and limbs, as in Roddick's case,* and sometimes time and the patient's idiosyncrasy modify the appearances. In a case shown by Hutchinson at the Dermatological Society, a boy of fourteen, "the whole of the scalp hair had been destroyed, and the scalp reduced to the condition of a scar. The face, part of the scalp, and the fingers were covered with thick horn-like crusts. The nails were thickened and broken up. On many parts of the body and limbs there were crusts and conspicuous scars. The peculiarity was that nowhere was there any crust in the least resembling favus, nor was there any approach to the peculiar odour of that malady, but the fungus of favus had been found both in the crusts and in the scrapings of the nails, but only after very careful search ; moreover, two cases of favus arose in the ward while he was in the Plymouth Hospital. The

* *Montreal General Hospital Reports*, vol. i., plate viii.

boy's lips were excoriated and the mouth generally inflamed. His circulation was feeble and his hands and feet dusky."

In a unique case of universal favus, shown by Kaposi and Kundrat to the Society of Physicians of Vienna in October 1884, and the morbid specimens subsequently on November 28th, the patient died from gastro-intestinal irritation with uncontrollable diarrhœa, and at the post mortem, erosions and diphtheritic swellings were found in the mucous membrane of the stomach, and the intestines contained foul, putrescent masses and much mucus. These swellings in the stomach were proved to be due to the favus fungus; and there was a little fungus found in the intestine, but the great bulk had undergone putrefaction.

Favus of the nail is extremely rare, and is thus described by Kaposi: "One or more nails may be affected in one of two ways: in one a scutulum is formed in the deep cells of the nail substance, as well as the structure of the nails permits, showing through the smooth layer of the nail over it, as a sharply defined, pale sulphur-yellow mass; it occupies only a small part of the nail, either at the side, from the fold to the centre, from before backwards, or near the lunula. In the other variety, it is indistinguishable, except by the microscope, from any other form of onychitis; the nail is dry, lustreless, discoloured, and opaque, furrowed, fissured, split into laminæ, and raised up from its bed. When scrapings are placed under the microscope, mycelium and spores of the same characters and arrangement as in the root sheath are to be found. As it is almost invariably derived from inoculation from scratching the scalp, evidence of the existence of the disease either in the present or past can always be found, and will assist in the diagnosis."

Etiology.—Direct contagion from person to person is the usual mode of origin, but it may also be derived from animals, rabbits, fowls, dogs, cats, and mice, which are all liable to it, and therefore possible sources of contagion, cats being the most common source of it. It has occurred under poultices without any ascertainable source of infection, the spores doubtless having been derived from the air, and found a favourable nidus in the warmth and moisture of the poultice. It is, however, far less easily communicated than ringworm, as it develops much more slowly, and therefore requires to be undisturbed for some days after deposition, the most favour-

able position being at the orifice of the hair follicle;* these conditions are therefore seldom fulfilled, except among the unclean and neglected, and it is therefore where dirt and squalor reign, that it finds most congenial quarters.

Kaposi says it is very rare for it to spread in a family, school, or community, but this is surely an error. The following cases came under me at the East London Hospital for Children:—The disease was probably derived from a cat, in which the hair came off in patches. The family lived in great poverty and dirt, and their heads swarmed with pediculi. A girl æt. seven was the first infected; when seen, six months after infection, the whole scalp was affected, and there were patches on the shoulders and arms. A brother æt. nine was next attacked, four or five months before he came to the hospital. It began in the front of the ear, and spread all over the head in a month; it appeared on the arms about the same time, but had only been present for a month on the thigh. The largest isolated patches were of the diameter of a good-sized pea, but compound patches were sometimes two inches in diameter; the glands in the neck were much enlarged, but where the hair was not cut, it was full of nits. Another brother, æt. eleven and a half, had only had the disease one month, and it was limited to the right parietal region.

Pathology.—The disease is due to the infiltration of the epidermis and hair follicles with the mycelium and spores of a fungus which is usually called achorion Schönleinii, though recent observations, to be presently alluded to, tend to show that this comprises several distinct species. The spores generally gain access into the skin by the orifice of the hair follicles, where they have sufficient space to develop round the shaft of the hair, and separate the layers of the epidermis between which it grows, and, except in the neighbourhood of the hair where it is held down, elevate the upper portion of the epidermis to about one-sixteenth of an inch above the surface at the periphery, sloping down towards the centre, and thus the well-known cup shape is produced. The rete cells below are soft, and get depressed by the downward pressure of the growth, and if not released by the

* Peyritsch found that if the skin immediately round a hair was pricked, and water impregnated with favus spores deposited immediately on it and allowed to evaporate, inoculation seldom failed, but it took three to six weeks to develop (quoted in Hebra, vol. v., p. 163).

removal of the favus mass, ultimately atrophy, together with the immediately subjacent tissue, and thus produce atrophic scarring. More or less inflammation of the cutis is produced by the presence of the fungus, and Robinson attributes the cicatrisation to this

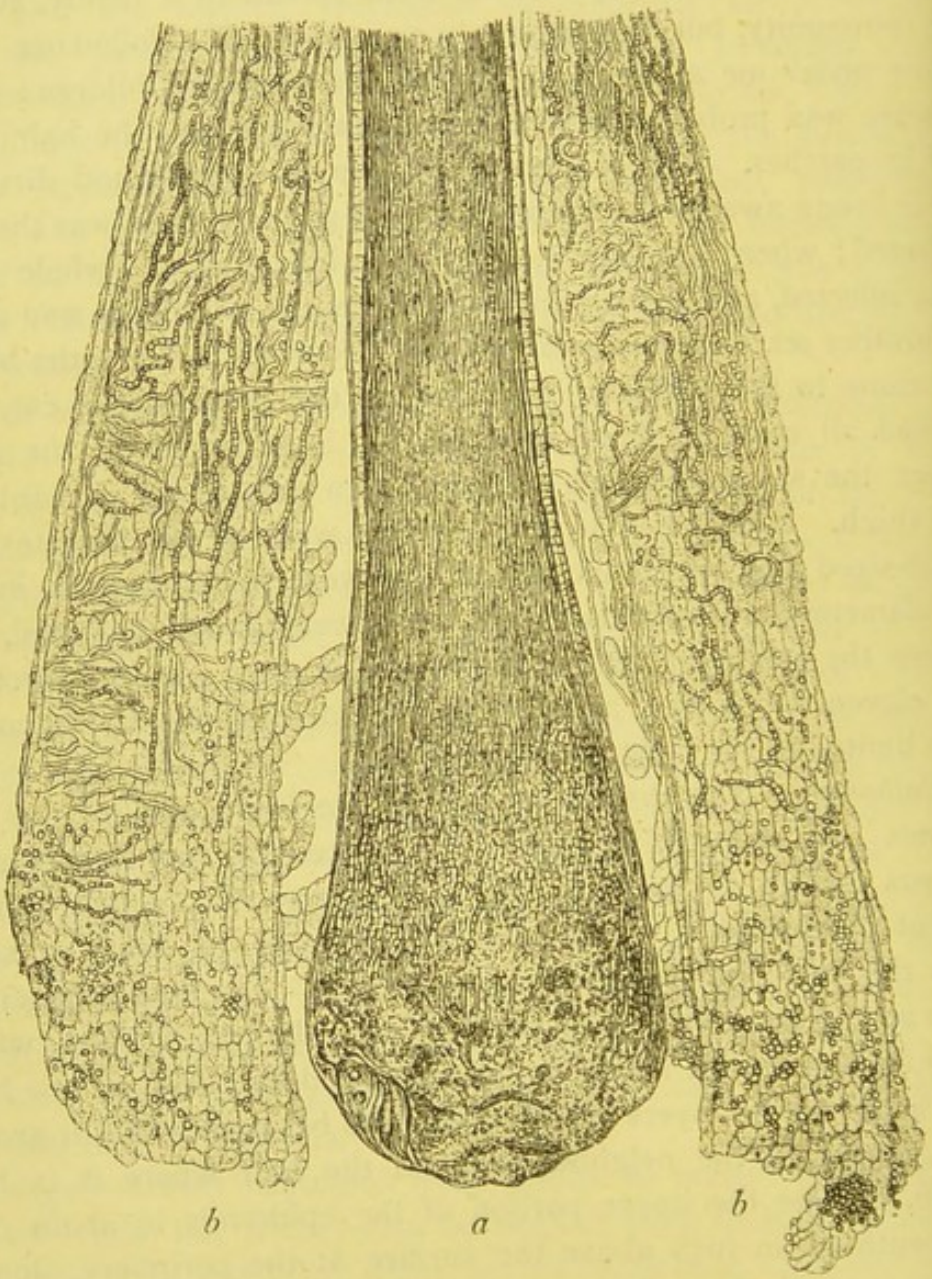

Fig. 75.—Hair shaft and hair bulb from favus. × 700 (Kaposi).
a, hair bulb; *b*, *b*, root sheaths, both being abundantly infiltrated with fungus.

cause; he also describes cystic degeneration of the sebaceous and sweat glands, and consequent retention of secretion.

Unna ascribes the cup shape, which is present even when the scutulum is not seated at a hair follicle, to unequal growth, the

base and sides growing more vigorously than the centre of the scutulum, which at first rests on the lower strata of the horny layer, and is surrounded by the middle and upper strata, which compress it, though it may become free subsequently. A distinguishing feature of the scutulum is the perpendicular growth of the filaments from the horny layer.

Anatomy.—When a section is made through a scutulum, as Bennett describes, there is first a layer of epidermis; beneath this, is a layer of finely granular, viscid material, consisting of a mixture of disintegrating epidermic cells and gland secretion, and this is continued for a considerable depth, and forms a kind of supporting stroma for the long mycelial threads,

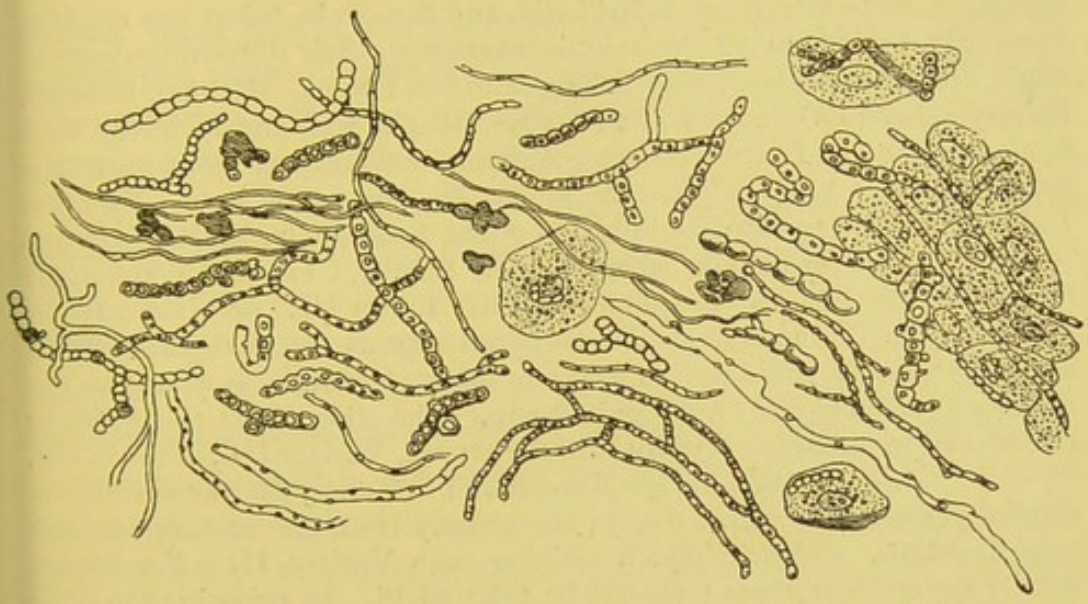

Fig. 76.—Fungus elements from the under surface of a favus scutulum. × 700 (Kaposi).

which give off branches more and more frequently, until they terminate in the production of conidia, which become so abundant, that the centre appears to consist of little else. Individual threads of mycelium may be smooth-bordered, small, and with or without septa and nuclei; but most of them are moniliform, the individual segments varying in length and diameter, but thicker as a whole than the smooth-bordered threads. The spores may be globular, discoid, oblong, or polyhedral, with a central nucleus, and this, when large, gives the appearance of a double contour. To see the fungus in the hair, the latter must be soaked in a one in twenty solution of caustic potash or in acetic acid, and flattened out slightly; both mycelia and conidia can then be shown abundantly in the hair shaft, running for the most part, but not altogether, parallel to the axis of the shaft. It appears probable, that the fungus gains entrance into the hair at the bulb where the cells are soft, though, to a less extent, it may invade the hair through the cortex also, but it does not seem to go much beyond

the level of the root sheaths. The threads and conidia run in all directions, and in parts, get between the root sheaths and the hair shaft, and separate the latter more or less from its attachments, so that it is, as a rule, easily withdrawn. One of the results of the injured nutrition of the shaft is, according to Aubert and Robinson, a longitudinal striation caused by air between the fibres, which simulates mycelium. Robinson considers this characteristic of favus, as it is not present in trichophyton tonsurans. In the ringed, scaly form of eruption, which is seen on the free surface, the fungus elements spread laterally between the epidermis layers, while in the nails it develops very much in the same way as in the hair shaft.

The Nature of the Fungus.—Quincke was the first to suggest that there was more than one species of favus fungus, though out of the three, α, β, γ, only α was considered the true favus fungus. Elsenberg* examined scutula from twenty-seven individuals, and though he found two varieties invariably present in all the scutula examined, their differences were so slight that he considered they belonged to one fungus. Neither, however, corresponded to Quincke's α, which he thought was one found by Baer in the mouse: the latter observer obtained cultivations which furnished fungi with two kinds of fructification. On the other hand, Kral and Dubreuilh's observations are in favour of one fungus only, but Kral's fungus is different from the usually accepted one. Finally, Unna and Frank again find three varieties, two of which (Varieties I. and III.) were successfully inoculated on Williams' leg, and produced scutula with naked-eye differences. Favus II. could not be made to produce scutula in man, but was successfully inoculated on the guinea-pig. The other forms could also be reproduced in animals—Variety I. in the mouse, Variety III., in the rabbit. In Variety I., the scutula are greyish-yellow; in Variety II., the scutula are sulphur-yellow, and grow slowly; in Variety III., the scutula are also sulphur-yellow, and grow much quicker than Variety II. For further details the original paper† should be referred to. In opposition to these observations, Danielssen,‡ after numerous inoculations on the human subject, concludes from the uniformity of his results that the achorion Schönleinii is the only fungus of favus. Obviously further research is required before the matter is beyond controversy.

Diagnosis.—Favus is one of the most distinctive of skin diseases. The sulphur-yellow, cup-shaped scutula, with a central hair, if situated on the scalp, are quite unmistakable.

In the later stage, when isolated scutula have coalesced into an irregular, mortar-like mass, some care is required to distinguish it from *psoriasis* of the scalp. The edges keep their yellow colour

* Elsenberg, *Viertelj. f. Derm. u. Syph.*, vol. xxi. (1889), p. 179, with references to Quincke, Thin, etc.

† *Brit. Jour. Derm.*, May 1892, p. 139, and vol. xiv. of *Monatshefte.*

‡ *Atlas of Vegetable Parasitic Diseases*, Bergen, 1892.

longest, the scales are less nacreous than those of psoriasis, and the loss of hair is much greater; and if there is any atrophic scarring, that would at once exclude psoriasis, in which the hair also preserves its lustre, while it is soon lost in favus. Of course, if the idea of favus was once suggested, the microscope would solve the difficulty, and close examination would probably discover some yellow discs round the hair in some parts.

When the scutula have fallen off or been rubbed off, unless there is scarring, it might be mistaken for seborrhœa, a scaly eczema, a psoriasis, or tinea tonsurans.

Eczema and seborrhœa, however, are diffuse diseases with ill-defined borders, while in favus the border would be rounded and defined. Any loss of hair also that there may be, would not be in patches, but rather a general thinning, and there would certainly be no scarring. It is in the absence of this only, that difficulty can arise with any of these affections.

In *ringworm*, the resemblance may be very close, and even the microscope will not decide it always with certainty.

In examining the scales for fungus, it must be remembered that all the scales are not fungus-bearing, and it is necessary to examine scales and hairs from several places, and that carefully, following the directions already given for the detection of fungous elements. If these be found, it is not always possible to decide what form of mycosis is present from the gonidia and mycelium, as they present great variation in aspect, even in the same species, but the distinctions laid down by Kaposi are true in the main, and are as follows: "In the achorion this consists in a predominance in the gonidia forms and in the great variety they exhibit as to size, and conformation, in the comparatively short and remarkably jointed appearance of the mycelium, the scarcity of the smooth-bordered variety, and the ease with which it breaks up into single cells. In trichophyton, the greater tenacity and stretched appearance of the much-branched and for the most part smooth-bordered mycelium, and the small number, uniformity, and comparatively small size of the gonidia, are the chief features. In the microsporon furfur, the peculiar arrangement of the gonidia in heaps or clusters and their uniform and large size are the main characteristics."

Careful attention to these criteria will assist in coming to a right conclusion, but they should always be taken in conjunction with the clinical features and not be relied on exclusively. As a last

resort in cases of extreme difficulty, the disease may be left untreated for a time, and in a week or two, if it is favus, some new yellow crusts will begin to form, while if ringworm, the disease will show signs of spreading, with the production of new foci.

Prognosis.—Although the disease is very obstinate and tedious, it may always be ultimately cured by steadily-persevered-in, judicious treatment. Thus a case of mine, which had lasted thirteen years, was cured by treatment in a year and a half. Favus is much more tractable on the skin than on the scalp, and is curable in a comparatively short time. Beyond the permanent baldness and scarring, favus was regarded as incapable of doing serious injury to the health until Kaposi's fatal case of universal favus already alluded to.

Treatment.—The treatment of favus of the scalp is of threefold character. The crusts must be removed, the epilation of the affected hairs efficiently practised, and parasiticides applied so as to penetrate as deeply into the tissues as possible. For the removal of the crusts, carbolised olive oil should be copiously rubbed in, and also left to soak in, by applying strips of flannel soaked in oil and fastened on with a cap; in twelve or twenty-four hours, the crusts can be removed with a paper knife, and then the whole scalp should be thoroughly cleansed with soft soap. Epilation then can be proceeded with. Kaposi recommends, that this should be effected by seizing some of the hair between the thumb and a flat surface like a tongue spatula; the force thus used is only sufficient to draw out the diseased hairs, leaving the healthy intact, and he claims that the process is almost painless. Parasiticides must then be rubbed or brushed in vigorously. These three measures should be daily repeated until a cure is effected, but as the diseased hairs become fewer, epilation must be practised with forceps, pulling them out singly, and in the direction in which they are growing. Where they are more numerous, the large, broad-pointed forceps, suggested by Dyce Duckworth, are of service, but the operation is too painful for very young children.

Bulkley recommends the following procedure for epilation; it is practically a modification of the old and barbarous "calotte," or pitch plaster treatment, in which the plaster was made to adhere closely to the scalp, after cutting the hair quite short, and then forcibly torn off; the hairs adhered to the plaister, and healthy

and unhealthy hairs were alike pulled out, while of course it was horribly painful. Bulkley had sticks, two or three inches long and a quarter to a third of an inch in diameter, made of ceræ flavæ ʒiij, laccæ in tabulis ʒiv, resinæ ʒij, picis Burgundicæ ʒx, gummi dammar ʒiss. The end of the stick is heated in a spirit lamp, and firmly applied; it soon sets, and with a twisting and pulling movement is removed, bringing the hairs with it. This method, also, does not discriminate between healthy and unhealthy hairs in the diseased patch, but does not remove any great number of normal hairs. Obviously, however, children under ten would not bear it, while few object to Kaposi's plan. The parasiticides, which should be applied immediately after epilation, are of the same kind as those recommended for tinea tonsurans, to which the reader is referred. I cured one case of twelve years' duration with resorcin ʒj to ʒj of lanolin and oil. Mibelli recommends 20 per cent. of oleate of copper, and washing with soft soap and spirit every two or three days.

After continuing these plans daily as long as there is any visible disease, which will take at least three months, and often more, a rest of a week, or three or four weeks, may be given, to see if any fresh yellow spots develop; and when these appear, they must be attacked vigorously, as before, each hair being removed with forceps. The disease may be considered cured, when even after six weeks' discontinuance of treatment there is no localised scaliness, much less a scutulum, and no loose, dull, degenerated hairs to be found. The treatment and necessary observation require therefore at least six months.

On the free surface, all that is required is to soften the crusts with oil, remove them and all epidermic scales by thorough washing with soft soap, and then rubbing in one of the parasiticides recommended in tinea circinata or painting on linimentum iodi; two or three weeks of such treatment are, nearly always, sufficient for a cure.

Favus of the nails is most quickly cured by avulsion of the nail, and applying the parasiticide directly to the parts beneath, but this severe procedure is rarely absolutely necessary, the treatment for tinea of the nail being equally efficient, though more tedious than avulsion.

TINEA TRICHOPHYTINA.*

Synonym.—Ringworm.

Deriv.—*Tinea*, a moth-worm.

The trichophyton fungus, by its presence in the tissues, excites inflammation of varying degrees of intensity and different aspect, according to the region of the body attacked. The difference in appearance is so great that these regional variations were formerly thought to be separate diseases, and had distinctive names; and although they are now universally acknowledged to have one cause in common, it is still convenient to retain these names and to describe their clinical aspects separately.

The varieties are tinea circinata, or ringworm of the body; tinea tonsurans, or ringworm of the head; tinea barbæ or sycosis, ringworm of the beard; tinea cruris seu axillaris, ringworm of the pubic region and axillæ, often called eczema marginatum; and tinea unguium, or onychomycosis, ringworm of the nails.

TINEA CIRCINATA.

Synonyms.—Herpes circinatus; Ringworm of the body; *Fr.*, Herpès circiné; Trichophytie circinée.

This is a very common form of the affection, either alone or in combination with one or other variety. In my clinique, it occurs alone in 2 per cent. of all cases of skin disease, and there are many more associated with tinea tonsurans. It begins as a small, pale red, circular, well-defined, slightly raised spot, which soon becomes scaly and spreads peripherally, clearing up *pari passu* in the centre, thus forming a ring, the raised border of which is usually papular and slightly scaly. The ring continues to increase in diameter, but without thickening of the border, until it has attained to the size of a crown piece or the palm, and when it has attained to its full size either remains stationary, or, the process of involution

* The generic name "herpes," used very generally on the Continent for ringworm, is justified by its derivation, ἕρπειν, to creep, but the term "herpes" is now so identified with the signification of groups of vesicles, and the parasitic origin of the ringworm group is so universally acknowledged, that tinea is more distinctive and expressive of the nature of the disease.

outstepping that of evolution, the ring thins, then gets broken, and finally the fragments also disappear, and the process is thus spontaneously terminated as far as that ring is concerned. It is common, however, for other rings to form; and if they are near each other, they coalesce, the rings being broken at their point of contact, and a gyrate figure is produced, enclosing sometimes a very large area. There is no attempt at symmetry or any regular arrangement of the rings, but they are more common on exposed parts, such as the face, neck, back of the hands, etc. There may be slight itching or no subjective symptoms at all, and the duration may be days, weeks, or months when untreated.

Variations.—Pale red, brannily scaly patches which enlarge peripherally, but do not clear up in the centre, are only a little less common than the typical rings. Usually circular and well defined, they are sometimes irregularly shaped, and their parasitic nature may not be suspected unless more typical lesions are present. Their borders, however, are always well defined. When the inflammation is more intense than usual, the border of a ring, or even a whole patch, may be vesicular or even pustular, instead of papular; slight degrees of this probably often escape notice, but well-marked vesiculation is decidedly rare. Another rather rare variation is the occurrence of several concentric rings. Thus Unna* records a case of three, and Arning† one of four, concentric rings on the limbs, and I have repeatedly seen two and occasionally three, and once an extensive eruption covering nearly the whole trunk‡ with the most elaborate patterns of concentric circles and gyrations.

When the disease attacks the fork or axilla, it constitutes the so-called **eczema marginatum**, or more appropriately **tinea cruris seu axillaris.** In these positions, the constant warmth and moisture favour the growth of the fungus, and the inflammation produced is often much more pronounced than that in tinea circinata elsewhere. The primary rings spread rapidly, and soon coalesce, forming pigmented areas enclosed by festooned, papulo-scaly borders. The limits of the disease may extend almost down to the knee, and

* *Viertelj. f. Derm. u. Syph.*, vol. vii.

† *Ibid.*, vol. x., p. 98, with photograph.

‡ Plate xx., Danielssen's recently published *Vegetable Parasitic Diseases of the Skin*, represents a similar condition, but not quite so elaborate as my case.

up to the umbilicus, between and over the nates, and up to the sacrum. The border is distinctly raised, often notably thickened, much broader than ordinary tinea circinata, with thick scales or even crusts from eczematous exudation, and there is usually considerable irritation. Sometimes fresh rings in large numbers form within the festooned enclosure, and in any case there is but little tendency to spontaneous recovery. The disease is seen in its most aggravated and obstinate form in hot climates, where it is much more common than here, and local names, such as Indian, Chinese, or Burmese ringworm, have been given to it; but no real clinical or pathological difference has been established between the tropical and temperate zone forms of the affection, except that the inflammation may be deeper and more severe and obstinate. The tropical disease called tinea imbricata, or Tokelau ringworm, is a separate affection.

D. Moukhtar* of Constantinople has called attention to its occurrence occasionally on the palms and soles, where it is very likely to take a vesicular form at first, and when later on, the epidermis gives way, it spreads with a raised collar of the horny layer, which may lead to an error of diagnosis. Several cases have been treated in the dry stage for the late palmar syphilide, while in the earlier vesicular stage it is very like a sweat eczema. Both the dry and vesicular form would be extremely like dermatitis repens. Mansuroff's† case of dermatomycosis circumscripta manus appears to be an instance of this tinea circinata palmæ. Microscopic examination would be decisive if the tinea were thought of.

Herpes tonsurans maculosus et squamosus of Hebra and Kaposi is the disease described in this work as pityriasis rosea (p. 253), and is not dependent on the ringworm fungus.

TINEA TONSURANS.‡

Synonyms.—Ringworm of the scalp; Herpes tonsurans; Tinea tondens; Porrigo furfurans; Trichonosis furfuracea; *Fr.*, Herpès tonsurant; Teigne tondante; Teigne tonsurante; *Ger.*, Scheerende Flechte.

* *Ann. de Derm. et de Syph.*, vol. iii., 1892 (several communications).

† *International Atlas*, plate xv.

‡ *Literature.*—For the history of the disease and the prophylaxis and treatment as carried out in France, consult Feulard's *Teignes et teigneux* (Paris: 1886); for *résumé* of English methods of treatment, Alder Smith on Ringworm; and for Pathology, Thin.

Tinea tonsurans is one of the most common skin diseases in this country. In my clinique it forms 10 per cent. of all cases, or taking all varieties of it together, 13 per cent. On the other hand, McCall Anderson's public statistics give only 7 per 1,000 for the scalp, while all the ringworms together constitute only 14 per 1,000; Bulkley's cases altogether were rather over 4·3 per cent. Practically it may be said to be confined to children; and although its direct effects upon the skin are usually insignificant, yet, owing to its being contagious and obstinate and the social ostracism it entails—interfering with education, etc.—its occurrence in a family or school is a real calamity, and it demands the greatest attention from the practitioner.

Symptoms.—Tinea tonsurans begins as a red papule round a hair, which soon becomes a small, round, well-defined scaly patch, pale or greyish-red, but covered with fine white scales. It spreads peripherally; and as the fungus gets down into the follicle, by the time the patch is the size of a threepenny piece, if not before, the hair shows signs of damaged nutrition. The patch continues to enlarge up to the size of a florin, or even a crown piece, seldom larger, preserving its rounded outline, unless two or more meet and coalesce into an irregular patch with gyrate outline, of almost any size, but with the borders always sharply defined. The larger patches are distinctly thickened and scaly, of a dirty greyish hue, and at first sight bald, but close inspection with a lens always shows that the patch is covered with stumps of hair, dull and lustreless, bent or spirally twisted, sticking out in all directions, instead of having a definite "set," and so brittle, that if an attempt is made to pull them out, many break off at or below the surface. When placed under the microscope, after being soaked in B.P. liquor potassæ for half an hour, and gently pressed out under the cover glass, they may be seen bent like a green stick, while their free end is frayed out like a brush, and with a power of at least two or three hundred diameters, abundant conidia or spores, with scanty mycelium, are seen to permeate the shaft of the hair, both downwards to the root end, and upwards above the surface for some distance, differing in this respect from favus. Between the inner root sheath and the shaft, the conidia are also in great numbers, but the mycelium is less conspicuous in the hairs than in the scales, where it is more abundant. The conidia measure from $\frac{1}{3000}$ to $\frac{1}{8000}$ of an inch, are round, sharply contoured,

with a central nucleus like a black dot. The mycelium consists of well-defined, transparent, branched, and pointed threads, terminating in conidia. They may be seen best in the shaft near the bulb, or between and on the scales.

Variations.—In very fair and fine-haired children, instead of the hairs sticking up, they lie close to the skin, spirally twisted like the fibrils of wool, almost matted together, and looking dull and thickened, and covered with powdery-looking *débris* of fungus-bearing epithelium, which gives them a white colour.

When the bulk of the disease has been removed, a few pustules here and there, in and around which, on close inspection, may be found some remnants of diseased stumps, which have set up the inflammation, may sometimes be seen in the later stage, in the same class of children.

This may be regarded as a mild degree of the more formidable condition, known as **kerion**, which cannot, however, be ascribed to any particular constitution or complexion, though there is doubtless some peculiarity either in the hair follicle or its owner, as such conditions cannot be set up at will in all cases, even with strong irritants. Kerion may be defined as pustular folliculitis, excited by the ringworm fungus, of which tinea sycosis has already been alluded to as an analogue. Whether pus cocci or similar organisms are added to the spores of the tinea and produce the pustulation is worthy of investigation. Every follicle in the patch is the seat of a pustule, and the acuteness of the inflammation and the close aggregation produce a well-defined, considerably raised, red patch, covered with very deep red pustules, the whole mass fluctuating and bearing a superficial resemblance to a carbuncle, for which it is often mistaken, but without the induration round, or the deep purplish redness. The hairs are loosened in the follicles by the suppuration, and are easily withdrawn, and eventually fall out, and thus effect a natural cure; after their removal, pressure gives exit to a thick, glairy mucus, more or less mixed with pus, but there is never any slough, though subcutaneous abscesses occasionally supervene, and in severe cases, permanent baldness may ensue.

In young infants where the hair is fine and scanty, and in older children, only where the hair is thin, there are distinct rings, the disease closely resembling tinea circinata. The hair follicles may or may not be involved subsequently, but the treatment of this form

seldom gives much trouble, as the disease is superficial. I have seen these rings even in a child of three.

An important but rather uncommon variation is what Liveing calls **bald tinea tonsurans**, in which the disease commences in the ordinary scaly patches, but after a time the hair in one of the patches falls out, and the scalp becomes as smooth as in alopecia areata, and on the borders of the patch the short, characteristic hairs of alopecia areata may frequently be found. Curiously enough, when one patch takes on this condition, the others almost invariably follow suit; but during this transition period, the bald and scaly patches may be seen simultaneously, and these are the cases recorded from time to time as alopecia areata, complicated with tinea tonsurans. When all the patches have become bald, the history of commencement in scaly patches will be the only guide to the mode of origin of the disease, though careful microscopical examination of some of the hairs immediately round the patch will generally detect the fungous elements. Many cases, however, are bald from the first, and some of these occur in families where the rest present ringworm in the usual form. See also under alopecia areata, in which instances of epidemics of so-called alopecia areata are related, and the facts set forth which lead me to regard the common form of alopecia areata and the bald tinea tonsurans as synonymous terms.

Another condition that leads to difficulty is where, under treatment, the great bulk of the diseased hairs have been removed or fallen out, and the scalp remains persistently scaly. Such cases are often erroneously considered to be no longer infectious, and allowed to mix with other children, but the disease is still rampant, and careful examination will always find some diseased stumps.

In neglected cases, or in those of very long standing, the condition which Alder Smith calls **disseminated ringworm** arises. The great bulk of the disease clears up, and there may be no distinctly bald or semi-bald patches, but in some places the hair looks lustreless, and breaks easily, and close inspection alone reveals here and there a solitary stump or small collection of broken-off hairs, or black stumps scattered more or less over the whole scalp. Such cases require great care for diagnosis and great perseverance in treatment.

Impetigo contagiosa may supervene as a complication, either

from scratching or from injudicious, irritating treatment in the spreading stage, setting up eczematous inflammation, and then the pus becoming accidentally inoculable. If the impetigo contagiosa is not arrested at once, the pus spreads the ringworm in the most disastrous way over the scalp. This is what Alder Smith calls "recent pustular ringworm," and is quite distinct from kerion.

Etiology.—Ringworm is indisputably contagious and propagated by the transference of the fungous elements to the scalp or body, either directly from child to child, or through the medium of brush or comb or other contaminated article that the diseased and the healthy child have come in contact with. The horse, dog, cow, and rabbit are also liable to it, and have transmitted it to man, and *vice versâ*, but the body is more often affected than the head from this source. It is possible that, where many affected children are congregated together, the fungus may be conveyed by the air alone.

There is but little difference in the liability of the two sexes. In six hundred cases of the scalp, there were about 6 per cent. more boys. With regard to age, the youngest cases I have met with were nine days for the disease on the scalp and one week for the body; in the other direction, practically the liability to tinea tonsurans ceases about the age of puberty, and it is much more amenable to treatment in children of thirteen or fourteen. In neglected cases, however, it persists indefinitely. Thus in a woman of twenty, the disease had existed from the age of ten years, and it was in the disseminated form all over the head. I have several times seen it commence in the nape and extend into the scalp, but without producing any apparent change in the nutrition of the hair, but only twice have I met with it commencing in the scalp in adults, in the characteristic form, with broken and bent stumps: one was a woman æt. thirty-four, whose child had ringworm; the other was æt. fifty-three. On the other hand, tinea circinata may occur at any age, but it is uncommon after fifty.

Malcolm Morris advanced the opinion that tinea tonsurans was more common and obstinate in fair-haired children. It is undoubtedly more common in fair children, but simply because fair children predominate in this country. In investigating this point, the colour of the hair and eyes was noticed in five hundred

children, taken consecutively at the East London Hospital for Children; then a record was kept of the same points in four hundred cases of ringworm, taking golden-haired, light brown, and the few red-haired children together as fair, and the rest as dark; it was found that there were 82·4 per cent. fair and 17·6 per cent. dark, while in ringworm there were 82·6 per cent. fair and 17·4 per cent. dark,—a curiously identical proportion. I have not been able to observe that the disease is more obstinate in fair children than dark, but am inclined to think that an undue proportion of kerion cases occurs in fair children, but the numbers at my command are too small to be at all decisive, as four to one would be about the right proportion.

There is no known constitutional or other condition of the patient to be made out that predisposes to ringworm, though there is no doubt that some people are more susceptible than others, *i.e.*, that their skin or hair follicles offer some special advantages for the cultivation of the fungus. No doubt, too, it flourishes more readily in badly nourished children; but, on the other hand, I have met with it in an extremely developed and obstinate form in perfectly healthy children, both fair and dark; so that, while it is always right to attend to any defect of the general health, I could never convince myself that the progress of the disease was materially influenced by such measures, and Tilbury Fox's dictum that children with ringworm dislike fat, and similar statements, are, I believe, fallacious.

The reason that ordinary ringworm of the scalp does not occur in adults, and that the bald form of ringworm is seen in a certain number of children, is, I believe, due to the greater resistance of the hair to the invasion of the fungus in adults, and in some dark-haired children and others, so that while the fungus may pass down into the follicle and interfere with the nutrition of the hair, it does not penetrate the shaft. That it is not merely a question of age is shown by the fact that ringworm attacks the beard, and there the fungus often penetrates into the hair shaft.

Pathology.—No one nowadays disputes that the presence of the trichophyton tonsurans fungus in the hair follicles and epidermis excites a variable degree of inflammation, and produces the varied clinical appearances described.

The exact botanical position of the fungus is much disputed.

The experiments which led to the supposition that it is one of the common moulds, or identical with that of favus or tinea versicolor, were made before Koch's methods were known, and need not be further considered. My own observations confirm

Fig. 77.—Epidermic scales from the sub-maxillary region, in a case of tinea circinata vesiculosa, in a boy. × 700 (Kaposi).
a, deeper layers of the flat epidermic cells; *b*, upper layers of the nucleated rete cells.

the view that Thin's experiments are more correct, and that the ringworm fungus is a special form, and no one now disputes its being quite distinct from the favus fungus. Duclaux was the first to grow trichophyton in fluid media, and produced aerial fructification. Leslie Roberts* confirms Duclaux's observations, and

* *Brit. Jour. Derm.*, September 1889.

refers the fungus to the ascomycetes. Others are now going further, and Furthmann and Neebe * and Sabouraud † make out four varieties. The last refers them to the genus Botrytis, and describes:—1. A small-spore variety without mycelium, which is only found in tinea tonsurans, and produces the most obstinate cases. 2. A large-spore variety with mycelium, less frequent on the head, but the author of tinea sycosis, and about half of tinea circinata. 3. Another large-spore form, which produces the other half of tinea circinata cases, but does not affect the hair follicles. 4. A fourth form, with large unequal spores, has only been found once. Species derived from animals are found occasionally. I have often seen small and large-spore forms, the latter in a very obstinate case. The life history of fungi requires further investigation before these views can be considered as proved.

The mode in which the fungus gains entrance into the hair substance is also not quite settled. The older and more generally held view was, that the fungus enters at the orifice of the hair follicle, penetrates between the shaft and follicle, and passes downwards until it reaches the softer cells of the bulb, and is then carried up by the growth of the hair, the mycelium insinuating itself between the hair fibres. In 1883, Balzer made observations which confirmed this view, and I have also seen conidia at the very bottom of the follicle prior to the invasion of the shaft. This is what Balzer calls the theory "du détour." The other, or direct theory is supported by Unna, who says, that a short distance down the follicle, the conidia pass under the cuticle of the hair shaft into its substance, and then extend down to the bulb and up into the shaft. Jamieson also supports this view, and states that the cells of the cuticula being directed with their free ends upwards, the conidia can the more easily insinuate themselves between the cuticle and the shaft. In vol. i. of *St. Thomas's Reports*, Bristowe also, in a case of tinea barbæ, figures the fungous elements within the shaft above the surface, while the follicular part was free. It is probable, therefore, that the fungus may get into the shaft by either route, according to circumstances favouring the one or the other.

The anatomical distribution of the fungous elements has been

* *Monatsh. f. prak. Derm.*, vol. xiii. (1891), p. 477.
† *Ann. de Derm. et de Syph.*, vol. iii., November 1892.

investigated by Thin* in the horse, and by F. Taylor of Guy's,† Robinson‡ of New York, and others in the human subject. Robinson found both spores and mycelium, the spores predominating greatly, most abundant in the stratum corneum immediately round the hair, from the neck to the surface. Both elements were also found in some cases in the rete and in the follicle for its whole depth and thickness, while in severe cases, spores were also found in the perifollicular tissue. They were either single or in rows or groups, containing five or six each, whether inside or outside of the follicle. In tinea barbæ, they were chiefly in the lower part of the follicle. This distribution does not accord with the observations of previous observers. Taylor found that the fungous elements were limited by the internal root sheath, which was not penetrated in the most extreme development of spores within, while the outer root sheath and follicular walls, the subcutaneous tissue, cutis, and rete were quite free. Thin's observations on the horse agree with this, and both confirm Küchenmeister's theory that ringworm fungus does not flourish in living tissues, but only in horny substances, such as hairs and scales.

Diagnosis.—There are few diseases of the skin in which errors of diagnosis are so frequently made as in ringworm of the scalp. Such errors are often most serious in their results to a school or other community of children, and bring therefore the practitioner into disrepute. To avoid this, it is necessary not only to know the aspect of typical cases, which indeed the laity themselves can often recognise, but the variations already enumerated. It is also necessary to remember that the amount of inflammation excited by the fungus is very variable and may mask the primary condition, and that familiarity with the diseased stumps, under all conditions, is an indispensable requirement. In a few doubtful cases, the skilful use of the microscope can alone decide the question, though if all the points to be described be borne in mind, this will rarely be absolutely necessary, except to settle whether a case is really cured.

In an ordinary way it may be said, that loss of hair on scaly patches in the scalp of a child means ringworm, and close inspec-

* *Med. Chir. Trans.*, vol. 1878, Thin.
† *Ibid.*, 1879, Taylor.
‡ *New York Med. Jour.*, March. 1880.

tion with a lens in such a case will almost invariably detect the characteristic, browsed-off stumps of hair, bent, broken, twisted, and sticking out in all directions, or with the appearance described as occurring sometimes in fair-haired children.

The diseases which most closely resemble it are dry seborrhœa of the scalp and psoriasis.

In *seborrhœa*, the scaliness is diffuse, and never in sharply circumscribed patches, and though there may be some slight loss

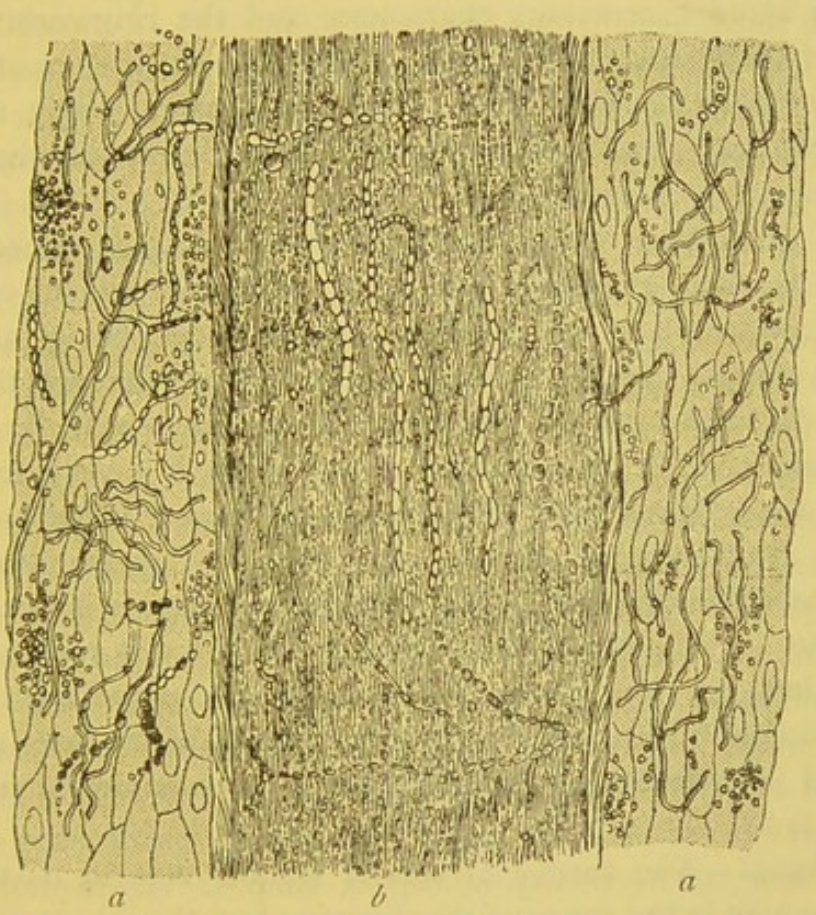

Fig. 78.—Hair and hair root sheath from tinea tonsurans of the scalp. × 700 (Kaposi).

a, *a*, the root sheath; *b*, the shaft of the hair. Both are copiously infiltrated with mycelium, polymorphous conidia, and chains of conidia.

of hair, it is in the form of general thinning, and there are never any broken-off stumps; moreover, in children, simply scurfy seborrhœa is not so common as in later life, while ringworm is practically limited to childhood.

Psoriasis sometimes offers more difficulties. Of course, if it is present in its usual situations, on the elbows and knees, or elsewhere on the body, no difficulty ought to arise; but the patient's friends do not always spontaneously inform the doctor of this, and

n a few instances, psoriasis is confined to the scalp, at all events for some time. The patches are circumscribed and scaly, but the scales are more abundant than in ringworm, often forming crusts; moreover, loss of hair is the exception, not the rule, in psoriasis, and there are never any stumps, but great care is required in order to be sure of their absence in fair, fine-haired children.

Eczema cannot be confused with typical cases, but sometimes either from scratching or from irritant applications, ringworm may present some eczematous characters, and the ringworm may be thought to be eczema only. The loss of hair, the circumscribed scattered patches, which are unusual in eczema, ought to excite suspicion, and close examination will then detect the short hairs of ringworm.

The distinction of kerion from *carbuncle* has already been alluded to, and from *impetigo contagiosa*, even when combined with ringworm, it may be distinguished by kerion being raised and sharply defined, and the pustules are always seated round the hairs. In any doubtful case, the microscope should be repeatedly used.

Prognosis.—Although every case is curable, it is very difficult to give a correct answer to the anxious question, "When will it be well?" In a very recent case, six weeks to three months would be a reasonable time for a cure, though even then it is not certain. For many chronic cases, six months is a short and twelve months a fair time, but some cases take longer even in the most experienced and skilful hands, and a large proportion of the cases reported as cured in a month or six weeks, are only examples of unskilled observation.

Treatment.—The theory of this is simple, viz., to destroy the fungus which is the cause of the disease; but, though parasiticides are numerous and sufficiently powerful, it is found in practice that while the cure of this disease is very easy, as a rule, when the disease is only on the body where it can be easily got at, it is very difficult to cure on the scalp, where the problem is how to get the parasiticide deep enough to reach the fungus, which often grows down to the very bottom of the follicle.

Tinea circinata is generally curable in a week or two by almost any of the recognised parasiticides. The scales should be removed (unless the eruption is on the face) by means of soft soap and a piece of wet flannel, and the patch, if in a covered part, painted with tincture of iodine, or acetic acid, or sulphurous acid; or hypo-

sulphite of soda ʒij to ℥j of water may be applied on lint covered with oiled silk; or one of the following ointments may be rubbed in three times a day:—sulph. sublim. ʒss, acidi carbolici ♏xx, lanolini ʒvj, ol. olivæ ʒij; cupri oleatis ʒss, lanolini c̄ oleo ℥j; hyd. ox. flav. ʒj, lanolini c̄ oleo ℥j. In an infant, very weak preparations are sufficient, such as ung. hyd. nit. dil., or hyd. ammon. ʒss, to ℥j of lanolin or lard.

On the other hand, in so-called *eczema marginatum*, especially when contracted in tropical climates, very powerful and penetrating parasiticides are required in some cases, though there is no harm in trying milder preparations at first. After thorough washing with soft soap, the hyposulphite of soda lotion is often sufficient, well brushed in and afterwards applied under oiled silk; this was a favourite remedy with Tilbury Fox. In tropical and more obstinate cases, Goa powder, or its active principle chrysarobin, is one of the most actively effectual remedies; it may be used as an ointment—chrysarobin ʒss, lanolin ℥j; or a piece of flannel moistened with strong acetic acid may be dipped into Goa powder and well rubbed on; or half a lemon may be dipped in the powder and used in the same way. The disagreeable effects detailed while describing the use of this drug in psoriasis may ensue, and patients should be warned of this possibility, and the remedy should not be resorted to, therefore, until milder measures have failed, such as oleate of mercury, oleate of copper, and many other remedies mentioned in the treatment of scalp ringworm; but in all cases, a perfect cure should not be hastily inferred from the absence of diseased appearances, as some living spores may remain in the epidermis ready to spring into activity as soon as parasiticide remedies have been discontinued, or when the weather or climate is warmer, to the disappointment of both patient and doctor; every case therefore ought to be carefully watched for some time, and the slightest return immediately and vigorously treated. R. W. Taylor recommends hyd. perch. gr. 2, tinct. benz. co. ℥j, to be painted on daily.

The treatment of *tinea tonsurans* remains the opprobrium of the dermatologist's art, from the difficulty experienced in carrying the parasiticide deeply enough into the follicle. As in all obstinate diseases, a legion of remedies are put forth as certain and speedy cures. I know of only one certain remedy, namely, *perseverance*. There is no case which cannot be cured, though too often success is only attained after a long course of treatment, and it may happen

that when success is in sight, the patient is taken off to some one else, who reaps the fruits of many months of labour, and gets all the credit. The consolation lies in the truth of the proverb, "Hodie tibi, cras mihi."

It will serve no good purpose to enumerate all the plans of treatment which have been brought forward even in the last ten years; a sketch will first be given of the general means to adopt for the cure of the disease, and for the prevention of its spread, either on the patient himself or to others, and then my own experience will be related of the most highly advocated remedies or methods of treatment.

The first thing to do, is to cut the hair as closely as possible for at least three-quarters of an inch all round the patch, or if there are more than one or two, it is better to remove the whole of the hair, leaving at the most a fringe all round, which, coming below the hat or cap, conceals the tonsure and prevents the patient from attracting too much attention. Whether the hair should be cut as closely as scissors can cut it, or shaved, is immaterial, but cutting is more convenient, especially as the process has to be repeated every few days. The object of removing the hair is twofold: it enables the diseased area to be more easily got at, and also any fresh focus of infection can be at once detected, when prompt treatment may effect a speedy cure, for when the hair is long, the early lesions often remain undiscovered until the fungus has got deeply into the follicle, and difficult to reach.

The parasiticide should be applied, not only on, but round the patch, and great care must be taken to get it into the tissues as deeply as possible. If it is a lotion, it should be dabbed on or brushed in, for some minutes; if an ointment or oily fluid, it should be well rubbed in, at least twice a day. With regard to washing, some difference of opinion has been expressed. Alder Smith and Malcolm Morris consider that when ointments are used washing should be done not more than once a week, as it removes the ointment and prevents it penetrating so deeply. This opinion I do not share. I have the head washed three times a week with soft soap on flannel, or the liquid potash soap called Mouilla, to which carbolic acid can be added. This removes all scales and the surface epidermis, and if the ointment be immediately rubbed in, penetration is, I think, facilitated. When the child is old enough—that is, over six years—epilation is a valuable adjunct; it should not

be done until after treatment has been employed either to loosen the hairs or to deaden sensibility. The latter may be effected by glycerine of carbolic acid, or cocaine 10 per cent. in lanolin, the hairs may be loosened generally by oleate of copper, and other means to be enumerated. The epilation should be performed systematically; a square quarter of an inch or more, should be cleared each day, according to the child's endurance.

When the child is eleven or twelve, and the part has been thoroughly numbed, Duckworth's large epilation forceps may be used at first, and a considerable area quickly cleared. Large numbers of hairs break off doubtless, but many are removed; the process is painful, and this plan is therefore only suitable for a small number of cases. When the hairs that have been broken have grown up again, they must be attacked individually with a finer pair of forceps, and pulled carefully out in the direction of their set; with care, vast numbers of hairs may be removed, but there will always be some too brittle for this plan to be completely efficacious. The parasiticide should always be applied immediately after epilation. When the child is young or nervous, this valuable adjunct has to be dispensed with.

To prevent the disease spreading on the child itself, all scales should be removed by soft soap, preferably carbolised, and the head should not be brushed, as that sows the spores broadcast over the scalp; on the whole, too, oily preparations are preferable to watery ones, to prevent the spores being carried from one part of the head to another, or from contaminating the atmosphere; for this purpose, carbolised oil one in twenty should be rubbed over the whole of the scalp, while the stronger application is used for the patches themselves. The lining of all hats and caps that have been worn should be taken out and burned, and tissue paper put in their place, and this can be thrown away daily; the caps or hats themselves should be renewed at least every month, while the stuff caps which have to be worn continually, should be thrown away even more frequently. The child should be isolated from others as far as possible, but where this is impossible, the patient must constantly wear a light cap of some kind lined with tissue paper, which must be changed daily, and no close contact with other children allowed. The healthy children's heads should be washed two or three times a week, and of course the diseased and healthy should not be allowed to use the same comb, brushes, or towels. When these

measures have been rigidly carried out, I have never known the disease spread to others, even when they have lived in the same room. The parasiticide applications, and the best means of making them penetrate sufficiently deeply, remain to be considered.

One of the most recent improvements for ointments, is the introduction of lanolin as a basis instead of lard or petroleum fats, but it is too sticky by itself, and it is better therefore to add a fourth part of olive, almond, or heavy paraffin oil. The base I use most is lanolin ʒv, parolein (a heavy paraffin oil) ʒiij. This mixture of oil and lanolin is therefore intended to make up the ounce in all the formulæ of parasiticide ointments; other solvents, each advocated by its author as *the plan*, have also been suggested, and are of certain utility, but falling far short of infallibility.

These solvents are—chloroform, æther, benzol, turpentine, potash, and soft soap; in one of these menstrua, the parasiticide is dissolved, and applied in the manner considered most suitable; all are successful in some cases, none are so in all, and unfortunately, we have no data on which we can rely, which enable us to predict whether any particular remedy will or will not succeed. One great source of fallacy is this, that when the disease is recent, most of the proposed methods are successful, and likewise when the case has been worried at for months with various parasiticides, and then goes to a fresh doctor, his favourite formula will probably score another success, and impress his mind with its wonderful efficacy. Not a few old women's and barbers' nostrums have obtained their reputation in this way, but their failures are never recorded. Pessimistic as these statements appear, they are intended not to discourage the practitioner, but to point out that the road to success is to be sought, not in this or that formula, but in perseverance with the various measures indicated, coupled with the employment of parasiticides, which are not to be hastily changed if there is any progress at all, such progress being looked for month by month rather than week by week. For some years past I have endeavoured to test almost every method advocated by any one of reputation, or in which the method itself offered anything like a chance of success. Twenty or thirty consecutive cases have been put on the treatment for at least three months, and then an endeavour made to form an opinion of its merits; the matter, however, is too complicated to allow of anything more than a statement of the impression made on my mind by it, but where

good authorities have come to a different conclusion their views will be stated. The ground will be cleared by first describing the treatment that will suit simple cases.

In infants of a few weeks or months old, the disease is almost as easily cured as tinea circinata; a good formula is sulphur ʒj, acid carbolic ʒss, lanolin c̄ oleo ℥j, or ung. hyd. oxid. flav. ʒj to ℥j; the sulphurous acid or hyposulphite of soda lotions previously mentioned, if continuously applied, or almost any of the remedies to be presently described, diluted according to the age of the patient, will effect a cure, remembering always to keep on the safe side, as the skin of young infants is easily excited to intense suppurative inflammation. If one of these parasiticides is rubbed in night and morning, or if lotions are applied continuously under oiled silk, success will generally follow in a month or two, or even less; if the child is under twelve months, epilation is unnecessary, and, indeed, impossible. In older children, in recent cases, one of the best applications to cut short the disease is Coster's paint (iodine ʒij, light oil of wood tar ʒvj, the bottle to be shaken before using). It should be firmly applied with a stiff brush; a black crust forms after two or three days, and this should be removed with the forceps, not waiting until it shells off of itself; the part is then to be well rubbed with soft soap and flannel, and the paint again applied. Two or three applications are almost infallible before the hairs are visibly affected, and even after this it is a very useful remedy, but not suitable for children under four years old. Alder Smith prefers oil of cade, and Morrant Baker creasote, to the light oil of wood tar; they are all equally efficacious, but the oil of cade preparation has the advantage of being thicker. I attach great importance to tearing off the crust, as it brings with it more fungus and diseased hairs than if it is allowed to separate spontaneously. For recent cases, blistering is also useful, either with liquor epispasticus, or glacial acetic acid, or, as A. Smith suggested, the last with the addition of hyd. perchlor. gr. 4 to the ounce. These powerful applications should not be used on strumous children, nor on those under six years old, and it is always wise to do a very small area at a time, as it is never quite certain how much inflammation will be excited, and a permanently bald patch is a perpetual memorial to the imprudence of the practitioner. This caution is applicable to all strong remedies, which should never be used without pre-

liminary investigation of the child's susceptibility. The crust formed by the acetic acid should be removed in two or three days with forceps, and weak parasiticides used for a week before again applying the acetic acid ; this plan may be used at intervals during the course of other treatment. In cases of long standing, glycerine of carbolic acid B.P., or even one in three, has many friends, but it has been only moderately successful in my hands ; it is, however, valuable in this respect, that after it has been used for a week or two, the sensibility of the part is much diminished, and epilation can be carried out comparatively painlessly. It must, however, not only be rubbed in, but the part thoroughly soaked with it. Another remedy that I regard as most valuable in this respect, and for a large proportion of cases of all kinds, is oleate of copper, of which Shoemaker and Le Sieur Weir were the earliest and strongest advocates ; as a rule, a drachm of the pure oleate to one ounce, in the form of ointment, is most generally useful ; and where the patient is tolerant, the strength may be gradually increased up to ʒiv to the ounce ; and I have used equal parts. In many cases, under its use the diseased hairs drop out, and leave the part bald and smooth ; and even where this is not the case, epilation is generally much facilitated, the majority of the hairs coming out entire and with little pain. In a large number of cases, a thorough and satisfactory cure may be effected by its persevering employment, but, like everything else, it fails completely in some cases.

In some of these, the addition of 20 per cent. oleate of mercury in equal parts is useful. Liveing, however, and some others do not speak well of copper oleate, possibly because the ointment has not been sufficiently strong. When it has been too strong, or the subject very sensitive, a certain amount of kerion has been set up, but this is scarcely a drawback, as the result is the destruction of the parasite, and I have never known permanent baldness from its use ; it is also quite exceptional to have more than a few pimples or pustules, its principal drawback, in my opinion, being its bright green colour. Shoemaker recommends that the head should not be washed with soap and water, but, when necessary, with spirits of wine. Oleate of mercury, 5 to 20 per cent., is another valuable application ; it is useful at all stages, and penetrates well. If Shoemaker's pure oleate be used, it should be the mercuric oleate, one in five or ten parts of lanolin. The strong preparations should not be used over too large a surface, though I have never seen

any symptoms of mercurialisation, but it is said to have occurred slightly in a few cases. When mercury dissolved in oleic acid only is made use of, an oily, crust-like seborrhœa is produced, which requires to be frequently removed with soft soap and water, but there is much less crusting with the chemical oleate. Shoemaker and A. Smith speak very strongly against washing during the treatment, but I do not consider it disadvantageous.

Cavafy strongly recommends the following:—Boric acid ʒiv vel. q.s., sulphuric æther ℥v, rectified spirit ℥xx. To make a clear saturated solution. After complete removal of all scurf and grease from the head with soap and hot water, the lotion should be thoroughly dabbed on, and pressed in with a sponge for at least ten minutes three or four times a day, taking care to cleanse the hair each day with soap and water to remove all grease and *débris*.

The above is nearly in the words of A. Smith, who strongly backs Cavafy's testimony of its merits, which I regret to say have not been so favourably impressed on my mind. After the stumps in the diseased areas have been removed, stimulating applications, such as turpentine or cantharides, are to be used.

With the same idea, Malcolm Morris recommends thymol or menthol ʒss, æther ʒv, rectified spirits ʒiiss, or chloroform may be added, and then the three menstrua should be used in equal parts. A. Smith thinks that chrysarobin and chloroform gr. 7 to ℥j is very valuable. Many years ago I tried chrysarobin and benzol gr. 20 to ℥j, but with all these preparations I have been disappointed, and unable to obtain the result which I hoped or the authors claimed; but, as others speak well of some of them, perhaps the fault is mine. I have been more successful with turpentine ℥j, to which gr. 3 of perchloride of mercury, dissolved in sp. vini ʒj, has been added; creasote or iodine, one in four of turpentine, is also useful.

Thymol was first introduced by myself for ringworm and other skin affections. I have used it in various strengths as an ointment, up to three or four drachms to the ounce; it is useful in some cases, and is not unpleasant, but it has not come up to my expectations; it is beneficial, however, dissolved in turpentine, half a drachm or a drachm to the ounce. Goa powder, and chrysarobin, were extensively tried by me in 1877, but, although an undoubtedly powerful parasticide, its disadvantages outweigh its advantages. It is very likely to produce the peculiar erythema described under

the treatment of psoriasis, with swelling of the face and eyelids, which is most alarming to the friends, though not really serious. It also dyes the hair yellow, becoming purplish-brown after washing, and stains indelibly all the linen it comes in contact with, and it is not more rapidly efficacious on the scalp than many less unpleasant remedies. It should never be prescribed without carefully explaining its effects.

Salicylic acid is another drug, with many friends, either as an ointment ʒj or ʒij to ℥j, or as a lotion gr. 20 to 60 to the ℥j of spirit, æther, or chloroform; both are remedies of some value. I have also tried salicylic acid plaster, which is useful in some cases, and facilitates epilation. After many trials, the following method has been more successful in my hands than any other. The head is shaved, not clipped, over the affected region, and for at least three-quarters of an inch beyond the patch. Then salicylic collodion (consisting of salicylic acid gr. 10, collodion ℥j) is painted daily for a week, on and beyond the patch. At the end of a week, the thick skin formed by the collodion is lifted off by insinuating one blade of the epilation forceps under the skin, and gradually lifting up a portion. This is repeated in various directions until the skin is cleared off, and then the scalp is again shaved, and the salicylic collodion reapplied for another week. The advantages are, that with this artificial skin on, the patient is no longer a source of infection, the air is excluded, and as the fungus is aerobic, its development is hindered. The salicylic acid loosens the epidermis, and also the hairs, so that when the collodion is lifted off enormous numbers of stumps can be seen to be adhering to the under surface, and the diseased area is eventually cleared of them. The disadvantage is that the removal of the collodion is somewhat painful, so that it is inapplicable to very young children, but there are few over seven years of age for whom it cannot be used. If the skin is very adherent at the end of a week, a day or two longer may be given; if any excoriation is accidentally produced, boric ointment should be applied until the skin is sound before renewing the collodion.

The principle of excluding air is one extensively adopted since Vidal showed that the fungus is aerobic. Vidal himself cleans the head with turpentine, then paints on tincture of iodine, and next smears on iodised vaseline, and covers it with laminated gutta-percha. Besnier epilates all round the patch, curettes off the

scales and stumps, washes it daily with salicylic acid, tar, or sulphur soap, and keeps the part covered with emplastrum de Vigo. Dockrell, after washing with hydronaphthol soap, covers in the scalp with emplastrum hydronaphthol, using jelly of the same material round, and says he gets a cure in three weeks; but this is doubtless a fallacy for most cases. These are only samples of different methods with the same aim. Unna's chrysarobin treatment is too severe, unless carried out under the closest supervision.

For a limited class of cases croton oil is recommended by Cottle, A. Smith, and others, and is a most valuable and certain remedy for suitable cases, such as chronic ones of limited area, and for the isolated and small groups of diseased hairs in disseminated ringworm; indeed, for the last form it is often almost the only resort left, and will cure the most obstinate cases. A drop of the pure oil is put into the mouth of each follicle by means of a needle, preferably a fine crochet needle; or, if there are a large number of diseased hairs, a fine hypodermic syringe may be used. In twenty-four hours, a pustule is formed round the hair, which can be removed entire—an impossibility without some such loosening process, as the hairs are so permeated with fungus as to be utterly rotten, and break off within their follicle. The hair is not restored, but the loss is not perceptible when the hair grows round it. Electrolysis will also effect the same end, but it is a tedious process for the operator, and will rarely be borne by children under twelve years old, or even older. Croton oil should never be used for strumous children, or for any who are less than six years old, and should be applied very cautiously at first, and never for more than a square half-inch at a time. In a limited patch, where it is necessary to cure in a short time—*e.g.*, to prevent the loss of a presentation to a public school—the quickest way is to produce a mild pustular folliculitis or artificial kerion, and the loosened hairs can then be easily removed. To do this, a liniment of one part of croton oil to ten of olive oil may be rubbed in, and if this fails to produce pustulation, the strength may be gradually increased until the desired effect is reached, one to four being almost sure to be sufficient. If well managed, the hair is sure to grow over the diseased part, taking a long or short time according to the severity of the inflammation excited. Feulard utterly condemns croton oil, and says epilation should be employed instead; but it is only as a necessary prelimi-

nary to epilation that it should be used. In disseminated ringworm, the hairs are so permeated by the fungus that they break off with very slight traction, unless they are previously loosened by suppuration or electrolysis. When, in the treatment of ringworm, either from the sensitiveness of the child or from using too strong a preparation, a serous or pustular dermatitis is produced, the contagium of impetigo contagiosa may be deposited, and the condition called by Alder Smith impetiginous ringworm set up. In the simple inflammation, boric acid ointment ʒj to the ℥j will soon repair the damage, but the treatment must be prompt, or the secretion in a recent case will rapidly spread the infection to the neighbouring parts. In the impetiginous condition, the disease should be treated as if it were a simple impetigo contagiosa; the crust must be softened in carbolised oil and removed, and the diseased area kept well covered with the ammoniated mercury ointment. The impetigo part will soon be cured, and the ringworm must then be attacked with the ordinary remedies, but of a weaker character.

Kerion, to a great extent, cures itself, and most authors suggest very mild measures, such as lead, watery boric acid lotion, equal parts of sulphurous acid and water, hyposulphite of soda lotion, or boro-glyceride, one to two of water, applied on lint under oiled silk; but I prefer sulphur ʒj, acid carbolic ʒss, adipis ℥j, removing the loose hairs, and have had such uniformly good results that I never use anything else. However much kerion tumours fluctuate and appear inflamed, they never require incision; the dilated follicles, after removing the hairs, always allow sufficient exit for the fluid, which is more glairy than pustular. The process should be brought to an end as soon as possible, as, although self-curative, it is often at the expense of the life of the follicle, and permanent baldness results.

The question arises, How should progress be judged of? The only real criterion is a diminution of the number of diseased stumps, and no case is safe until they have completely disappeared. The uniform growth of fine downy hair over the denuded patch, which develops into strong healthy hair, subsequently takes place; but, even though the new hair may have apparently grown all over the patch, the cure must not be assumed unless careful and repeated search has failed to find a single diseased stump, and where there is any doubt as to their condition, the microscope must be employed. Persistent scaliness is often regarded as only a sequela of ring-

worm, and practitioners sometimes write to the journals, saying that they have cured the ringworm ; hut how can they get rid of the scaliness ? This is an error ; persistent scaliness in patches, always means that the disease is not yet cured, and careful search with a lens will always establish the presence of diseased hairs. Even when repeated and skilled search has failed to find such stumps, and the hair has grown evenly all over the patch, and there is no longer scaliness, there is one precaution which, if omitted, may lead to disappointment, viz., that after apparent cure a weak parasiticide, such as hyd. perchlor. gr. 3 to lanolin c̄ oleo ℥j, should be rubbed in two or three times a week for two or three months. For this reason children should not be sent back to school as soon as they appear well, as the bi-weekly treatment is scarcely ever carried out there, and it is very difficult to convince parents even, of the value and necessity of this extra precaution.

Onychomycosis. For the treatment of ringworm of the nails, one of the many proposed plans is to scrape the affected nail thoroughly, and then apply sulphurous acid or the hyposulphite of soda ʒij to the ounce of water, on lint covered with oiled silk. This plan is good, but the best in my hands has been the treatment recommended by Harrison of Bristol for tinea tonsurans. Two solutions are prepared. No. 1 consists of liquor potassæ and aquæ distillatæ āā ℥ss, pot. iodid. ʒss ; No. 2 solution consists of hyd. perchlor. gr. 4, spir. vini rect., aq. dest. āā ℥ss. The affected nail should be well scraped, then No. 1 solution applied on lint under oiled silk for fifteen minutes ; then No. 2 solution is to be immediately applied on lint under oiled silk for twenty-four hours, when the nail is again to be scraped, washed, and the process repeated. In this way, I have obtained cures in cases of very long standing. When the skin begins to peel, and the finger becomes tender, hyposulphite of soda may be used until the skin has become thicker again. The same treatment for the scalp requires great care. I have seen most disastrous sloughing from its careless application. It must be remembered, as No. 1 solution evaporates, the caustic potash is becoming stronger every minute, and a powerful caustic solution is produced. Unless, therefore, the medical man can superintend the treatment himself, it is better not to trust such a potent remedy in inexperienced hands. But for the nails it is most satisfactory.

TINEA BARBÆ.

Synonyms.—Tinea sycosis; Sycosis parasitica; Mentagra parasitica; Parasitic sycosis; Ringworm of the beard; Barber's itch; *Fr.*, Sycosis parasitaire; Trichophytie sycosique; *Ger.*, parasitäre Bartfinne.

Definition.—Folliculitis of the hairy parts of the face, excited by the trichophyton tonsurans.

Ringworm of the beard is generally described as a very rare affection, but this is only true of the more severe or kerion forms, minor degrees of it, corresponding with tinea circinata, being not at all rare in my experience, but their nature is often overlooked.

Symptoms.—The disease begins as an itching, red, round, slightly scaly spot, which may enlarge and form a ring with a clear centre, or remain as a scaly, well-defined patch. Other patches usually soon form, and there are generally some hair-pierced pustules, either in or beyond the scaly patches. It is in this form that the disease usually presents itself among the better classes, who shave daily and practise frequent ablutions.

In the more severe, or what may be called the kerion form, although the disease may begin in the same way, the inflammation soon becomes more severe, as in the following typical example.

A robust man, æt. thirty, with reddish-brown beard, stated that the disease began as a red ring, the size of a sixpence, on the side of the lower jaw, after being shaved at a barber's. The ring was soon followed by a scaly patch just above it. Shaving led to a watery discharge, the patches spread peripherally, and the more he shaved the more discharge there was, which soon became partly thick and glairy, partly "mattery." When seen, two months from the onset, the whole of the chin and half-way up the sides of the face and the upper half of the neck were of a shining, deep red, swollen with irregularly lumpy, flattish masses, from half a walnut in size downwards, brawny to the touch for the most part, but with here and there soft patches, some of which had already discharged. The whole affected area was covered with hair-pierced pustules, except where frequent bathing with hot water had caused them to rupture, and there were outlying discrete pustules beyond the confluent area. The hair had been allowed

to grow for about a quarter of an inch, and was easily, and almost painlessly, extracted even with the fingers, a characteristic early feature of the disease. Evidence of damaged nutrition of the hairs was not present. The dry, brittle, lustreless, broken or frayed stumps are, in my experience, found chiefly in cases of long standing. The chief sensation complained of was burning and tension, with only moderate tenderness. Between this and the first form described, are all grades of severity and extent.

The disease is more acute in development than ordinary sycosis, but unless properly treated is almost as indefinite in its duration, and even when apparently cured, will relapse if not carefully watched for some time, owing to some of the spores having escaped destruction. The suppuration also may be severe enough to destroy the follicles and produce cicatricial baldness of the part. The disease may be associated with or originate from ringworm elsewhere. Thus, in one of my cases, it appeared to have arisen from an eczema marginatum of the fork, this being followed by rings on the face. In another, the patient was in the habit of rubbing his chin where the eruption was, with the back of his hand, and on this three rings of minute hair-pierced pustules appeared. Buzzi records the converse of this, in which a man with tinea sycosis gave a typical tinea circinata to his wife, and she to her child.

Etiology.—The disease is due to the same fungus as ordinary ringworm, and is generally contracted by those who are shaved by a barber, the fungous elements being probably conveyed by the shaving brush, and not by the razor, as is popularly believed. Of course it may also be derived from children or animals who are suffering from ringworm ; but this is a less common mode. It is more common in young adults than in the elderly, but is independent of the general health, though doubtless some local predisposition, of the nature of which we are ignorant, is an important factor.

Pathology.—The disease is a folliculitis, usually pustular, of the hairy parts of the face, closely resembling ordinary sycosis, but due to the irritation from the presence of a fungus in the follicle. The identity of this fungus with that producing tinea tonsurans and circinata is scarcely disputed nowadays, and the title "microsporon mentagrophytes," which was formerly given to it, must therefore be abandoned for that of "trichophyton."

For the mode in which the fungus gains entrance into the hair, see the pathology of tinea tonsurans.

The reason that the hairs are loosened in this form and not, as a rule, in ordinary sycosis, is, as Robinson showed, that in the tinea form, the process begins inside the follicle and separates the follicular walls from the shaft, the inflammation spreading thence outwards, while in ordinary sycosis it begins without the follicle and spreads into it. The severity of the inflammation, as compared to that of most cases of ringworm, Jamieson says, is

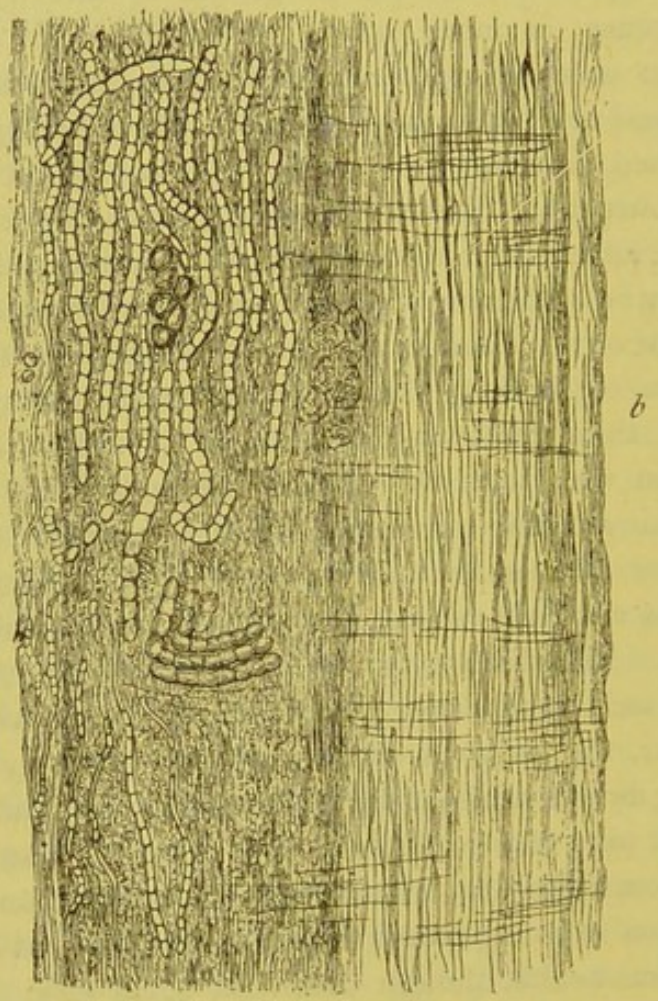

Fig. 79.—A hair from the beard in a case of tinea barbæ. × 700 (Kaposi). *a*, the portion infiltrated with fungus; *b*, the part free from fungus.

due to the preponderance of mycelium over conidia in sycosis, and that growing mycelium is more irritating than growing conidia; but he offers no proof of this statement.

The readiness with which the trichophyton tonsurans attacks the beard and penetrates into the hair, is a proof that it is not the age of the patient, but an anatomical change in the hair substance, which prevents ringworm showing itself in the scalp in adults, in the same way as in children.

Diagnosis.—A rapidly spreading folliculitis of the face, accompanied by brawny swelling, irregular lumpiness, loosening of the hairs, and perhaps evidence of their damaged nutrition, should lead to examination of the hairs by the microscope, when the fungus, if searched for carefully, will be found.

From ordinary *sycosis* it differs in its more rapid spreading, the frequency of multiple foci of disease, the greater lumpiness and brawny swelling, and the early loosening of the hairs, which are extracted without pain or difficulty, and are often without their root sheath.

From *eczematous folliculitis*, which may be even more acute than the tinea, it differs, in that an eczema is more superficial, unless of long standing, discharges serum at first, and even vesicles between the hairs may sometimes be seen. The eruption also is generally to be found in parts where there are no hairs, or at least a history of its having been elsewhere is generally obtainable, the free surface eczema often clearing up and leaving the folliculitis behind. There is an absence of brawny swelling and lumpiness, and the hairs can only be extracted with pain and comparative difficulty, and with their root sheath attached.

Prognosis.—The disease may last for years if the cause is unrecognised, but is always amenable to appropriate treatment perseveringly employed.

Treatment.—The first and essential part of the treatment is systematic and complete epilation of the affected area. Each day a square inch or so should be cleared of hairs—and, owing to the loosening of the hairs, this is easily effected—and the parasiticide applied immediately afterwards. I do not agree with Jamieson that the acuteness of the inflammation is a contra-indication for the immediate employment of parasiticides ; on the contrary, that inflammation speedily subsides when its cause is destroyed.

The strength of the parasiticide need not be so great as that for ordinary tinea tonsurans. The formulæ suitable for kerion are suitable here also, such as oleate of copper ʒss to ℥j ; sulphur ʒj, acid. carbolic. ʒss, lanolin c oleo ℥j ; and others are described in the treatment of acutely inflammatory tinea tonsurans. In this way, the great bulk of the disease is speedily removed, but watchful care and perseverance are often required for some time, in order to ensure complete stamping out of the vitality of the last spore of the fungus. The abscess-like swellings do not require incision, as the

removal of the hair is sufficient to allow the pus to escape. Poultices should never be employed, as they favour the spread of the fungus. The milder forms require the same treatment as for tinea circinata, combined with epilation.

TINEA IMBRICATA.*

Synonyms.—Tokelau or Bowditch Island ringworm (lafa Tokelau); Le Pita; Gune; Cascadöe; Herpes desquamans.

Definition.—A tropical, vegetable parasitic, contagious disease, characterised by the formation of patches of concentric scaly rings.

The first medical description of this disease was in 1844 by Fox in America, under the name of "gune" (native word for skin), and subsequently by Turner, Königer for Samoa, Manson for the Malaccas and China, and Macgregor for Fiji. It is confined to the tropics; and although spread pretty widely over the various groups of islands in the Pacific, it has been especially prevalent in the Malay Archipelago and the Gilbert Islands, where Fox observed it, and whence it spread to the Tokelau and Samoan groups. It has never been seen in England. The cascadöe of the Malaccas, described by P. van Meederwoort, is evidently the same disease.

Symptoms.—With rare exceptions, the disease avoids the scalp, face, and forehead; and even when it invades other hairy regions, the fungus, Manson says, does not invade the follicles, leaving, consequently, the hair unaffected; but Königer† states that the hair on the body (not the scalp) is almost destroyed where the eruption has occurred.

With the exception of the head, it may attack any part of the body; and when it has existed sufficiently long unchecked, it may spread over a whole limb or region, or the entire body surface.

A separate, fully developed patch consists of concentric rings of scales, these rings being about a quarter of an inch apart, and eventually filling up the whole patch, which then looks like watered silk. The scales vary in size up to half an inch square, and are

* *Literature.*—Hirsch's *Geographical and Historical Pathology*, vol. ii., p. 375. *Med. Rep. of Imp. Maritime Customs for China*, 1879, abst. in *Med. Times and Gazette*, vol. ii. (1879), p. 342. McCall Anderson, *Ed. Med. Jour.* for September 1880, with plates. Manson, *Brit. Jour. Derm.*, vol. iv. (1892), p. 5, with history and bibliography.

† Virchow's *Archiv*, 1878, Bd. 72, p. 413.

free at their external edges, which are slightly curled, except in old cases, when they become large, thick, and horny, and give the body the aspect of being coated with clay; hence the native name, meaning "clay-skin." "The appearance of comparatively recent patches," Turner says, "may be imitated by taking a sheet of stout cardboard and shaving the upper layer of it in such a way as to make it curl up in circles." Königer describes the disease as beginning "with an eruption of small papules, mostly grouped in circles, which cause intense itching and desquamation round their growing periphery. Afterwards these circular efflorescences coalesce, the skin becoming at the same time hard, dry, and brittle." Manson of Amoy has repeatedly inoculated the disease, and thus describes its development: "After inoculation there is an incubation period of about nine days. At the end of this time the fungus has multiplied sufficiently to slightly elevate the epidermis under which it is growing, and form a brown mass between it and the corium. When this has obtained a diameter of about three-eighths of an inch, the epidermis in the centre gives way; but as it is still organically continuous with the sound skin at its margin, it is not completely shed, but remains as a fringe round the central hole. By friction or other means the free edge of the scale is from time to time removed, and the brown central fungus and the tissue it is mixed with, now no longer protected by a closely adhering epidermis, are rubbed off as far as the attachment of the scale, and the exposed corium appears pale. Just beyond this point, the advancing fungus shows through the epidermis as a brown rim, perhaps very slightly elevated, about one-sixteenth of an inch in breadth. When the entire ring thus formed has attained a diameter of about half an inch, a brown patch is again seen to be forming at its centre; this in its turn also cracks the young epidermis over it, and a second ring is formed inside the first, which it follows in its extension. A third brown central patch is formed in the centre of the second circle, and behaves in exactly the same manner, and so on with a fourth, fifth, and a never-ending series of concentric rings."

The patches extend at the rate of a quarter to half an inch a week.

The only symptom attending the eruption is the intense itching, and where the scales have come off, stains are left in rings, or sinuous lines of a livid colour remain, which are very persistent,

and may be permanent. The disease is much dreaded by the natives, but, though very disfiguring, is not injurious to the general health.

Etiology.—The disease is undoubtedly contagious, attacks both sexes at all ages, but especially children, Meederwoort stating that it always begins from the second to the fourth year, but this is only true for a large proportion. It is tropically endemic. Manson thinks it requires special climatic peculiarities for its development.

Pathology.—Königer and Manson were the first to demonstrate its fungous parasitic origin, and Manson called the disease and fungus, tinea imbricata. The fungous elements are confined to the epidermic layers, especially the under surface, and do not affect the hair follicles; and according to McCall Anderson (with whose observations those of Manson, made on fresh scales, nearly agree), who examined some of the scales, as compared to tinea circinata the fungus is much more abundant, the chains of spores much more numerous than the mycelial threads, and the spores, though of the same size, instead of being round, are oval, rectangular, or irregular, while the mycelial threads are long, straight, or gently curved; but Siegfried, on the other hand, writing from Amoy, says that the mycelium is large-sized and predominates over the spores, which are sparse.

Diagnosis.—This would offer no difficulty in the regions where it is endemic. The concentric scaly rings which tend to fill up the central area, while the outer ring is spreading peripherally, differ completely from *tinea circinata*, in which the central area clears *pari passu* with peripheral extension.

Treatment.—The fungus being quite superficial, this does not appear to be difficult, provided the clothes and other coverings can be destroyed or disinfected. The scales should be removed by alkaline or sulphide of potassium baths, and then Manson recommends linimentum iodi, double strength, painted on to a limb or other portion of the body, and extended each day. Relapses, especially when the dirty belongings are retained, must be watched for and promptly dealt with. Other methods of treatment would be the same as for the more obstinate forms of tinea circinata. Goa powder or chrysarobin, applied as there directed, would be one of the most efficacious means of cure.

FUNGUS FOOT OF INDIA.*

Synonyms.—Madura foot; Mycetoma; Podelcoma; Ulcus grave; Tubercular disease of the foot.

Definition.—An endemic disease affecting the foot or hand, attended with disintegration of the tissues.

There are two varieties, the pale and the black, the black being the more common, and in the vast majority of cases the foot or leg is attacked, but sometimes it affects the hand, and in rare instances the shoulders and scrotum.

Symptoms.—In a fully developed case, the foot is much swollen and distorted, the arch being broken down, and the toes over-extended, so that the sole is convex from behind forwards. All over the surface are numerous pea-sized mammillated eminences, in the centre of which is the orifice of a sinus leading to a cavity situated at various depths in the foot substance, and giving exit to a thin sero-purulent discharge, containing whitish or blackish rounded granules, which also stud the surface of the eminence round the sinus.

The disease appears to be superficial, and may attack only a toe or finger, but the mode of commencement varies. In some cases, there is at first very little swelling or alteration in colour, except perhaps slight congestion; in others, there may be a local induration or a papule, pustule, or nodule, either superficially or deeply seated, at some part of the foot, firmer, larger, and more diffused and less painful than a boil, which, when opened, discharges ordinary pus at first, but later on granules like poppy seeds, or the peculiar black material to be presently described, mingled with the discharge. In other cases, there is a blackish or bluish mottled discoloration like tattoo puncta, before any wound of the skin appears.

Course.—The disease progresses so gradually that it takes several years for the whole foot to become disorganised, though

* *Literature.*—Vandyke Carter, *On Mycetoma, or "Fungus Foot of India"* (Churchill: London, 1874), with many coloured plates. Tilbury Fox, 3rd ed., p. 468. *Skin Diseases of Parasitic Origin* (Hardwick), p. 62. *Endemic Skin and Other Diseases of India*, Fox and Farquhar's Report, p. 42, Appendix I., p. 18, Appendix IX., p. 215. *The Fungus Disease of India*, Lewis and Cunningham's Report, Calcutta, September 1875.

it is generally useless for progression after a year or two, but its course and duration are very variable. Cases have been recorded lasting as long as twenty-six or even thirty years; and, on the other hand, a considerable portion of the foot is sometimes involved in the course of a year or less, but three to seven years is a common period. In some instances, the tumour is very large, increasing the bulk of the foot to four or five times the normal size.

Etiology.—The disease is endemic in certain parts of India, especially in Madura, but is not limited to any particular soil or geological formation. It is far more common in males than females, and may occur at all ages, though it is rare below puberty. A history of a previous attack of guinea-worm disease is present in a good many, but no etiological connection can be shown. It appears to be more common in those who work barefoot in the fields, and has never occurred in Europeans, but a case in an American is recorded.* Not infrequently, the disease is said to date from an abrasion or other slight injury, but equally often the origin is quite obscure.

Pathology.—Vandyke Carter long ago found a fungus in the black variety, which was named after him Chionyphe Carteri, and to which he attributed the disease; but as none could then be found in the pale form, it remained doubtful as to whether it was the true materies morbi. In 1886, he pointed out, as Ponfick had previously done, how much mycetoma clinically resembled actinomycosis hominis. Since then, owing to improved methods of staining fungi, this conception of their relationship, if not identity, is in a fair way of being proved, thanks to the researches of Crookshank, Kanthack,† Hewlett,‡ etc., though it may well be that the respective fungi are not of the same species, as there are several important differences between the Madura foot and actinomycosis hominis, as seen in Europe. These differences are stated by N. F. Surveyor§ as follows: Madura foot is invariably a chronic disease; the internal organs are never affected; the constitutional symptoms are always very slight; actinomycosis hominis is almost unknown in India; the sulphur-coloured bodies of actinomycosis hominis have never been detected; on the other

* Kemper, *Amer. Pract.*, September 1886, quoted by Duhring, p. 490

† *Path. Trans.*, vol. xliii., 1892, and *Lancet*, July 16th, 1892.

‡ *Ibid.*, July 2nd and August 27th.

§ *Brit. Med. Jour.*, September 10th, 1892.

hand, the peculiar uniform bodies with the clubs and filaments look like some ray fungus.

Anatomy.—On making a longitudinal section of a Madura foot in an advanced condition, the limb is found to be tunnelled in all directions by sinuses, which may pierce the bones even, and lead to spherical cavities, either single and blind at one end, or compound and communicating with other cavities and sinuses.

The single cavities may or may not be superficial; the compound ones are deep in the foot substance, and may be either in the bones or soft parts, and ramify in every direction. The cavities and channels are lined by a fibrous membrane, and contain granules, separate or aggregated into mulberry-like masses, compared to fish-roe; these may be whitish-yellow, brown, or black, and in rare instances are red, abundant in the discharge, and not only occupy the cavities, but the sinuses, studding the surface of their walls. They are all considered to be of fungoid origin by Carter, but Lewis and Cunningham only admit this as regards the black particles, the whitish granules being derived from fat composed of a caseous nucleus, with an envelope of fatty crystals; the rarer red or pink granules are also considered to be concretions from degenerated tissues, chiefly phosphates and carbonates, while their colour is derived from the colouring matter of the blood.

The black masses contain the fungus in abundance, but are chiefly composed of the mineral constituents of the tissues *plus* black colouring matter derived from that of the blood.

The only difference between the black and pale varieties appears to be in the presence or absence of this black material, and of the fungus elements in the tissues and in the discharge.

The tissues of the foot are much altered, so that there is a general confusion of parts, owing to absorption of the bones and fibrous tissues, and thickening of the soft parts. The muscles are the least altered, and in some cases, the bone substance remains healthy all round the channels with which they are pierced, while, on the other hand, the bone substance of the tibia and fibula has been found softened when the limb has been amputated apparently well beyond the disease.

Hewlett has demonstrated in a case of the pale variety that the roundish and reniform bodies are composed of ray fungus elements, and Kanthack promises to publish a similar proof for the black kind as he has already done for the pale form. The fungus can be best demonstrated by staining by Gram's method.

Diagnosis.—When once the sinuses are formed, and the discharge of black or fish-roe material has ensued, there can be no difficulty in diagnosis. And the black granules under the skin before ulceration are almost equally suggestive. In the early stage, when it commences with a vesicle or pustule, the idea of the presence of the *guinea-worm* may suggest itself; but when the abscess and sinus form, the diagnosis is cleared up.

Prognosis.—Spontaneous recovery is unknown. The disease is slowly progressive, until complete disorganisation of the tissues is produced, and the patient is encumbered with a bulky, painful, and useless limb.

Treatment.—Only complete removal of the diseased tissue is of any avail. In the early stage, if the affected area is superficial, scraping with a sharp spoon may be successful, or the removal of a finger or toe, while the disease is limited to it, may suffice; but when advanced, amputation of the limb, well above the diseased area, is the only course.

ACTINOMYCOSIS OF THE SKIN.*

Definition.—A parasitic affection due to the ray fungus, which excites suppurations and sarcoma-like tumours in the tissues.

Actinomycosis is a very rare affection of the skin, the deeper tissues, especially the bones, liver, and other viscera, being more frequently affected.

In 1877, Bollinger recognised that the so-called osteo-sarcoma of the jaws of oxen was really due to a fungus, which Harz, from its morphology, named the "ray fungus." In the same year, Israël described a case in man, but left it for Ponfick, in 1879, to demonstrate that the affection in man was identical with that in animals, as described by Bollinger. Majocchi was the first to describe its occurrence in the skin. He divides cases into anthracoid and ulcero-fungoid. The fungus gets into the tissues generally by the mouth, especially along carious teeth; by some other portion of the digestive tract; or by the air passages. The lesions excited by its presence may reach the skin in some part of the face and neck, rarely affecting the abdominal walls from the

* *Literature.*—E. Ponfick, *Actinomykose des Menschen*, Berlin, 1882, with coloured plates. J. Israël, *Actinomykose des Menschen*, Berlin, 1885. A. Illich, *Klinik der Aktinomykose*, Wien, 1892, with photographs and references to five hundred and sixty-nine communications. Neumann's *Atlas*, plate xiii., the only coloured plate of actinomycosis of the skin. Uncoloured illustrations of the face or neck have been published by Illich (*loc. cit.*), and Darier and Gautier, *Ann. de Derm. et de Syph.*, vol. ii. (1891), p. 449. English readers, for a general account of the subject, may consult Hime's full abstract of Israël's monograph in *New Syd. Soc.*, *Microparasites in Disease* (1886), and the observations of various authors in the *Transactions* of the learned societies; or "Actinomycosis hominis," by M. Skerritt, *Amer. Jour. Med. Sciences*, vol. for 1887.

viscera. Only in a very few instances, has there been proof or reason to believe, that the skin has been primarily affected from without through some abrasion of its surface, and the hand has been thus affected, but usually it is the face or neck even then, the special Indian form, mycetoma, being of course excepted. From the time of entrance of the fungus to its appearance on the surface, many weeks, months, or even years may elapse. In secondary involvement of the skin, the lesions produced are remarkably like those of scrofuloderma, for which they have often doubtless been mistaken. The deep-seated actinomycotic tumour enlarges, suppurates, and as it approaches the surface the skin becomes red, livid, thinned, and undermined by suppuration, and fluctuating tumours are formed over the affected area, often with little or no pain; but pain may be present, and even severe, and then the skin at last gives way, either at one, or more often at several fistulous openings, a sanguineous serum or purulent fluid containing the characteristic yellow granules being discharged. These granules are from a small pin's head to a hemp seed in size, of some shade of yellow, usually pale, but they may be greenish-yellow in tint. When pressed between the slide and cover glass, and examined, the fungus to be presently described is to be found by the microscope. In exceptional cases, there is persistent board-like infiltration without any softening or breaking down, or the induration may gradually subside without treatment. In Darier and Gautier's case, a woman æt. twenty-five, nearly the whole cheek was occupied by a red nodular swelling, crusted in some places. The nodules, some of which were a third of an inch in diameter, were on a hard base, and some suppurated and broke down. The part was tender, but not otherwise very painful. As the clinical characters were not those of cancer, glanders, syphilis, or lupus, the pus was microscopically examined, and actinomyces found.

Etiology.—Males more than females are affected, on account of their employment, and the majority have been young adults, but five years and forty-four have been recorded. Some have had to do with cattle or horses, others have been in the habit of chewing straw or raw corn, but in many neither occupation nor other circumstances have suggested the mode of origin. In exceptional instances, it may be directly communicated. Baracz of Lemberg reports the case of a cab-driver, in whom a tumour the size of a

walnut formed over the left lower jaw, after the extraction of a tooth; an incision was made into the tumour, and the pus examined showed the ray fungus; shortly afterwards this man's fiancée came under observation with a similar but softer alveolar abscess, which also contained the fungus. Murphy of Chicago had a case in which the lower jaw of a woman was affected, and the history showed that her pet dog had died shortly before with a large swelling of the lower jaw.

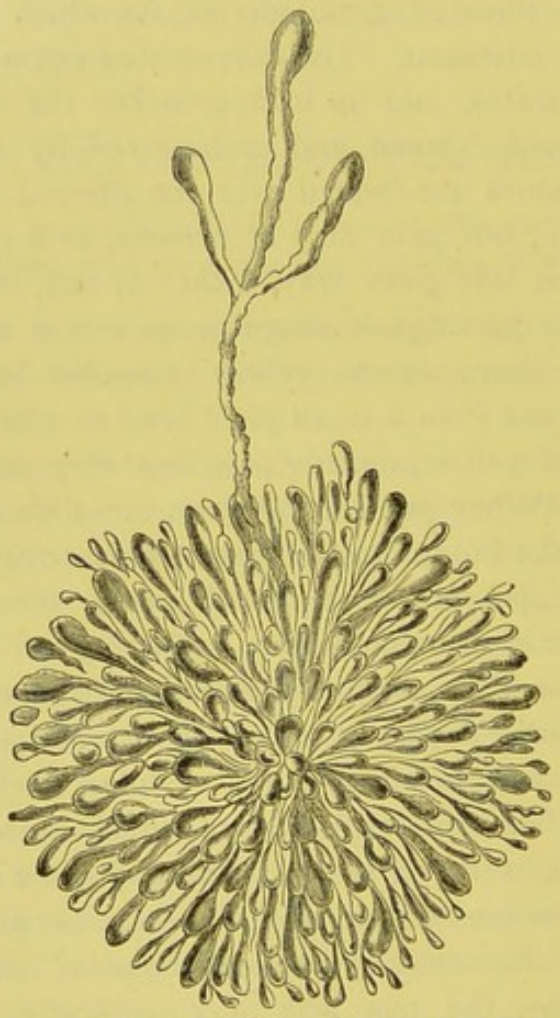

Fig. 80.—A mass of actinomyces, showing the ray arrangement, the club-shaped bodies, and a thread of mycelium extending beyond the mass and after division expanding to form clubbed ends (after Ponfick).

Although there is some evidence that the fungus is derived from corn or hay, there is no definite proof yet of its origin.

Pathology.—It has already been explained that the disease is due to the inflammation excited in the tissues by the ray fungus; it only remains, therefore, to describe its morphology.

Anatomy.—The yellow granules above described have a centre consisting of a mass of finely interwoven threads, from which others, equally

fine, radiate, and constitute the greater portion of the nodule. These threads, either singly, or after dividing dichotomously, swell out at their ends into club-shaped bodies, which being situated at the periphery of the mass, give it an irregular mulberry appearance. There is reason for believing that the central threads are the mycelium, and the club-shaped bodies the fructifying portion of the fungus, but the latter point is not yet definitely proved. Gram's method of staining with gentian violet, and decolourising with his iodine solution, appears to be the best and readiest method of demonstrating the fungus.* It can also be cultivated in nutrient media and inoculated into bovine animals, but rabbits and dogs are comparatively insusceptible.

Diagnosis.—Slowly developing, comparatively painless, suppurative growths, in circles, groups, or moniliform lines, in an adult, especially if in the skin near the jaws, with yellow points under the skin, and a tendency to open in several places like a carbuncle, should excite suspicion, and lead to the examination of the pus for the characteristic sulphur-yellow masses which are the only sure sign of the disease. The absence of lymphatic enlargement and the age would be against scrofuloderma, few cases occurring in children, and the occupation connected with horses or oxen, or with dried cereals, might furnish a significant hint. That the actinomyces are not readily found in all cases, Legrain's† case shows: The skin over the nodules was stretched and red, and small superficial abscesses formed in the neighbouring skin. On puncture, a hard zone was felt round them, but no fungus detected, but scrapings of an abscess inoculated under the abdominal skin of a rabbit produced a hard nodule, in which the ray fungus was found microscopically, and further demonstrated by successful cultivation in bouillon, gelatine, and agar-agar. The inoculation in a rabbit is noteworthy, as Ponfick considered them insusceptible.

The *prognosis* is good if the lesions are situated in a position where removal can be effectually accomplished, otherwise it is ultimately fatal.

Treatment.—This is local and surgical—laying open sinuses, scraping out the diseased tissues, removing affected bone, and syringing thoroughly with antiseptics, such as 1 in 1,000 or stronger of perchloride of mercury, or with carbolic acid, iodine,

* For further details, see the observations of Crookshank, Acland, and others in the *Med.-Chir. Trans.* of 1892, and recent volumes of the *Path. Trans.*

† *Ann. de Derm. et de Syph.*, and abstract in *Brit. Jour. Derm.*, vol. iii. (1891), p. 399.

etc., is the best line of treatment. Darier and Gautier successfully used the latter's electro-chemical method. Platinum needles were inserted, and once a minute some drops of a 10 per cent. solution of iodine of potassium were injected. The needles being connected with the poles of a battery, and a current of fifty milliampères employed, nascent iodine was produced. Four sittings of twenty minutes each, under chloroform, were required, the first three at eight days' interval; the last was delayed by her confinement. In an obstinately recurring case, Kotnitz was eventually successful, with thorough cauterisation of the cavities and fistulæ with the solid nitrate of silver.

TINEA VERSICOLOR.

Synonyms.—Pityriasis versicolor; Chloasma (old name); Mycosis microsporina; *Ger.*, Kleienflechte.

Definition.—A vegetable parasitic disease, which is characterised by patches of various sizes, shapes, and shades, of brown colour, situated chiefly on the trunk.

This disease is more common than might be inferred from dermatological statistics, which in England and America give rather more than 1 per cent., Hublé, in France, having found it in ·68 per cent. in examining over two thousand healthy young soldiers; in my own clinique, it is less than ½ per cent., while in Duhring's it is over 2½ per cent., and in the hot countries of the East it is very common.

Symptoms.—Practically it may be said to be confined to the trunk, though in a few cases, it extends a little beyond, to the neck, thighs, and arms, and even to other parts.

It occurs either in discrete, roundish spots or patches, of the size of a split pea and upwards, which may remain separate and be scattered freely over the body, but more frequently they coalesce into large, irregularly outlined tracts, which may cover the whole trunk, but generally more on the front than the back. Discrete patches, in greater or less numbers, are usually scattered beyond and between the main tracts; the extent, however, is very various, and there are all gradations, from one or two moderate-sized patches upwards, but the bulk of the disease is generally on the chest, abdomen, and interscapular region.

The patches are usually of a fawn colour or some other shade of brown. The edges are sharply defined, especially where they are

extending, but scarcely perceptibly raised above the surface, which is usually slightly furfuraceous, unless sweating is profuse, when it may be smooth and greasy to the touch. On scratching it with the nail, much of the discoloration can be removed, either in scales or rolls, for the growth affects chiefly the superficial epidermic layers. Itching may or may not be present, but it is seldom very marked. The patches spread slowly, as a rule, but may extend rapidly in a very congenial soil. If untreated, it may last indefinitely, and it has a great tendency to relapse after apparent cure.

Variations.—In a few cases, the disease extends for some distance down the limbs, and I have seen it in the popliteal space three times and in the elbows twice; it may even affect the face, though it is rare for it to extend beyond the covered parts. Thus Biart * of Nebraska records a case of a man in whom there were pea- to finger-nail-sized patches on the left cheek up to the external canthus, and a continuous band over the greater part of the forehead, which encroached slightly on the scalp; there was also a spot behind the ear, while on the trunk it was very extensive, and reached down both arms, on the right extending to a little below the elbow. Payne also found the microsporon furfur abundantly in the scales from the scalp and beard, where apparently there was only a simple pityriasis, but the patient had had tinea versicolor on the trunk for some years. Sometimes, chiefly in persons who sweat profusely, the disease commences with, or is accompanied or followed by signs of inflammation. The patches are then red and often very itchy, and occasionally may become eczematous. The colour also may be much darker than usual; I have once seen dark brown; and even black (**pityriasis nigra**) is recorded by Willan, Cazenave, and Tilbury Fox. These black cases were in individuals who had been in hot climates. According to Hebra, however, the pityriasis nigra of Willan is really the pigmentation which follows prolonged phthiriasis. On the other hand, Lutz, writing from Honolulu, points out that in coloured races it produces white, or, where the fungus is very abundant, grey discoloration of the skin. The whiteness persists for some time after the fungus has been destroyed, and he attributes it to the layer of fungus preventing the light from exerting its usual actinic effect, and so the dark colour is not developed in the material from which the pigment is formed, and which can be recognised in the rete, but without coloration.

* *Amer. Jour. Cut. and Ven. Dis.*, vol. iii. (1885), p. 73.

Etiology.—Eichstedt of Greifswald in 1846 was the first to demonstrate that the disease was due to the growth of a fungus called microsporon furfur. It is contagious, but only to a slight degree, requiring a congenial soil, not to be found in all persons, and prolonged contact, as in the occupants of the same bed, though husband and wife do not necessarily communicate it to each other. Köbner succeeded in inoculating both men and rabbits with the fungus. It affects both sexes, but men rather more frequently than women in my experience, but it is not seen in the very young or very old, occurring chiefly between twenty and thirty. The extremes, in my experience, are sixteen and forty-five years, but Sidney Phillips showed a case at one of the societies of a boy æt. seven and three-quarters, with patches on the chest and back. It is certainly more common in those who perspire freely, and this may account for its being seen so often in the phthisical, though some think that malnutrition is the favouring factor. It is certain, however, that it is by no means infrequent in perfectly robust individuals, and cleanliness is no safeguard against it, though it would be less likely to attack, and spread much less slowly in, people who wash thoroughly and frequently. According to some experiments of Daguet and Héricourt,* however, the fault is on the other side, and they think that the microsporon furfur fungus produces phthisis in some instances, as they found this fungus in the diseased tissues, and the injection of the fungus rendered guinea-pigs and rabbits tubercular. These deductions are *à priori* improbable, and the experiments require confirmation before they can be accepted as correct. Two other French observers assert that it only occurs in persons who have both seborrhœa and dyspepsia.

Pathology.—The colour is mainly due to masses of strongly refracting conidia, which are situated almost entirely in the upper part of the horny layer. According to Gadden, they also penetrate into the lanugo hair follicles. The microsporon furfur is one of the most characteristic fungi of the skin. The conidia are arranged in closely crowded conical heaps, around which are the mycelia, interlaced more or less together, and connecting the neighbouring heaps of conidia. The conidia are, as a rule, round, larger than those of ringworm, rather smaller than a red-blood corpuscle, and fairly uniform in size. They consist of transparent protoplasm

* Abst. of their paper in *Lancet*, May 8th, 1887, "Pityriasis and Phthisis."

enclosed in a doubly contoured membrane, containing a strongly refracting yellowish nucleus. The mycelia are not very long, for the most part unbranched, and may be even or jointed, singly or doubly contoured with nuclei at regular intervals, and when fully developed show conidia at their termination, these latter coming off either directly from the mycelia or budding from each other (fig. 81).

The fungus can be readily detected by washing the scrapings in æther to remove the fat and then examining them in acetic acid or liquor potassæ, taking care to tease out the masses, so as to get a sufficiently thin layer.

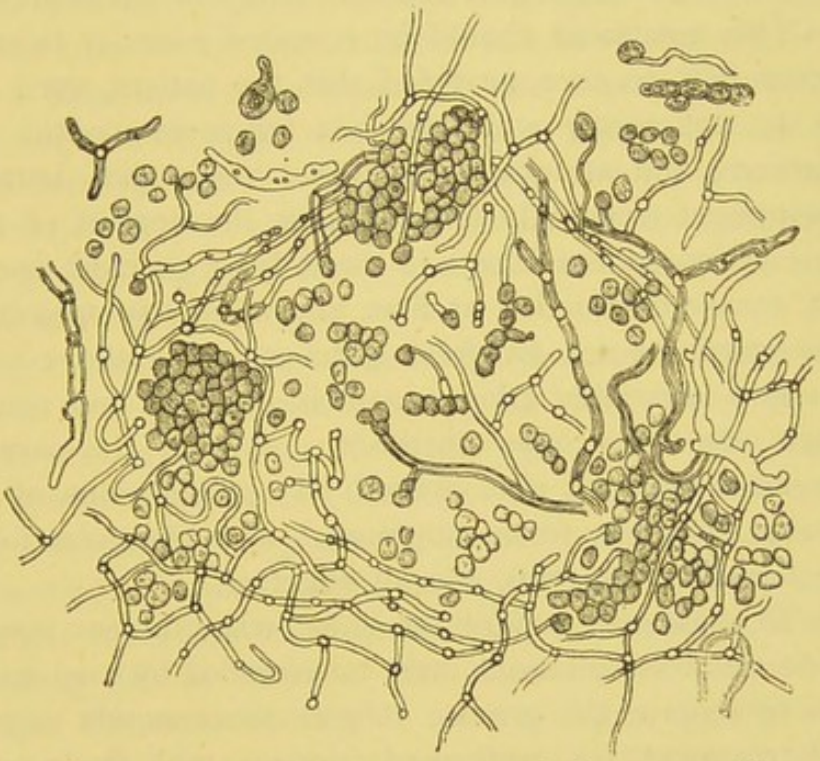

Fig. 81.—Fungous elements of microsporon furfur. × 700 (Kaposi).

Diagnosis.—The yellowish discoloration situated chiefly on the trunk, and capable of being peeled off by scraping with the nail or a knife, and the microscopical appearances, are distinctive. The diseases most like it are *seborrhœa papulosa*, or *lichen circinatus*, *pityriasis rosea*, and *erythrasma*. The differences from the last are given under that disease.

Seborrhœa papulosa does not travel beyond the trunk, has a red, papular margin, and is more often in separate small patches than tinea versicolor. The microscope would always be decisive in a case of doubt.

Pityriasis rosea is acute in course, affects the limbs as much as

the trunk, has fine, silvery scales, and only faint discoloration when it is fading and the inflammatory symptoms have subsided.

Prognosis.—The disease is always amenable to treatment.

Treatment.—The skin should be thoroughly washed with plenty of soap and warm water—soft soap preferably if the skin is not very delicate—and scrubbed with a nail-brush; the greasiness of the skin is thus removed, and the superficial layers roughened up, which allow the parasiticide to penetrate more thoroughly. The skin is then rubbed with a piece of flannel dipped in the following lotion, sodæ hyposulphitis ℥j, aquæ destillat. ℥viij. The under-flannels must be thoroughly baked, boiled, or preferably thrown away. This treatment should be repeated once or twice a day, and never fails to cure, provided that the patient, even after the disease is apparently well, watches for some months for any reappearance, and attacks the smallest recurrence immediately. Disappointment frequently follows from the neglect of this precaution. A few spores here and there, lying perhaps deeper than the rest, escape destruction at first, and when left unmolested are the new starting-point for fresh patches. The above treatment is the one I invariably adopt, as it is effectual and convenient, but there are many other methods. Any of the parasiticides recommended for tinea circinata will do; preparations of thymol, chrysarobin, sulphur, fresh sulphurous acid (formulæ for which may be found at the end), are all effectual.

They all, however, require the same watchfulness against recurrence; and watery lotions must be preceded by soap-and-water ablution to remove the grease. Vigier recommends merely mechanical treatment, viz., prolonged frictions with finely powdered pumice stone fifty parts, soft soap one hundred parts; or Unna's marble soap would act in the same way; but hyposulphite of soda or sulphurous acid lotion used after the soap, would render the cure more rapid.

ERYTHRASMA.*

Definition.—A vegetable parasitic disease producing brownish patches.

This trivial affection was first described by Burchardt (1859), and then by Bärensprung (1862), and later by Besnier, Balzer,

* *Literature.*—Burchardt, *Ueber eine bei Chloasma vorkommende Pilzform. Med. Zeitung*, 1859, p. 141. Bärensprung, *Ann. der Charité*

Dubreuilh, Riehl, Weyl, Köbner, Payne, etc., who all regard it as a separate affection, with which I agree. It is not very uncommon in men, but more so in women, and as it produces no inconvenience, is usually only discovered accidentally.

Symptoms.—It occurs almost exclusively in the folds of the axillæ, inguinal and genito-crural regions, the cleft of the nates, and the adjoining parts of the trunk or limbs, usually by extension, but sometimes arising there independently. It occurs as roundish or irregularly outlined, well-defined, slightly furfuraceous patches, of variable size at first, of a uniform reddish, later on, of a yellowish, reddish, or dark brown tint, and slightly unctuous to the touch. The patches are generally few and small, but occasionally it covers a large area, as in Besnier's case, where it extended all over the thighs and upper arms, but as a rule it is confined to warm and moist situations. It spreads very slowly ; if not treated, it may remain for years unaltered, producing no symptoms, or only very slight itching. Riehl's youngest case was sixteen years, his oldest fifty-eight.

Pathology.—Many writers have regarded it as a tinea versicolor or an eczema marginatum, but all the authorities above mentioned are agreed that it is due to a separate vegetable parasite, which Bärensprung called microsporon minutissimum. Whether it belongs to fungi like the tineæ or to bacteria is a matter still undecided. Payne regards it as a "mucor in its mycelial stage without sporangia" ; he describes it as consisting of a series of interlacing jointed threads, with segments of unequal length and variable thickness, sometimes terminating in slightly swollen, blind extremities, but without branching ; they were situated between or at the borders of epithelial scales ; he was doubtful whether there were any true spores. Balzer, on the other hand, describes in addition groups of minute spores here and there ; in size, these various elements were about one-third those of tinea tonsurans. Neither Balzer nor Payne agree that the spores, etc., found by Bizzozero in normal skin, especially between the toes, are of the same characters as microsporon minutissimum. A

Krankn., 1862, Bd. x. Balzer, *Ann. de Derm. et de Syph.*, vol. iv. (1883), p. 681, and vol. v. (1884), p. 598. The first contains plate of parasitic elements, the second a good general account, with bibliography. Ziemssen's *Handbook*, p. 526. There is a good abstract of Riehl's paper in *Amer. Jour. of Cut. and Ven. Dis.*, vol. ii. (1883), p. 84, with woodcuts. Payne, *Path. Trans.*, vol. xxxvii. (1886), p. 516.

power of five or six hundred diameters is required to see the organism well. Last comes Pasquale de Michele,* who finds two organisms, the leptothrix epidermidis, which is found in various other warm and moist positions, and another organism, which belongs, he says, to the genus microsporon, and from cultivations of this he reproduced erythrasma in the inguino-scrotal region, but failed with the leptothrix. While he considers that he was the first to identify this, Bärensprung having only found the leptothrix, he with rare self-denial adopts Bärensprung's name of microsporon minutissimum for his own discovery.

Diagnosis.—The only disease for which it could fairly be mistaken is *tinea versicolor.* The absence of the disease to any extent on the trunk, the slighter disturbance of the horny layers, and the darker or redder colour of the patches ought to suggest its nature, but in doubtful cases, microscopic examination would be required, when the different characters of the parasite of the two affections would be obvious; the absence of the well-marked signs of inflammation of *eczema marginatum* would distinguish it at once from that disease.

Treatment.—This is the same as for tinea versicolor, and the same precautions against recrudescence are required.

PINTA DISEASE.†

Synonyms.—Spotted sickness; Mal de los pintos; Mal del pinto; Tiña (Mexico); Caraate, or cute, *i.e.*, look at his face (Venezuela and Granada); Quirica (Panama).

Definition.—A tropical, contagious disease, due to a fungus which produces various discolorations of the skin.

The disease appears to be confined to the tropical regions of America between lat. 27° north and 28° south, but possibly some

* *Giorn. internaz. d. Scienze Med.* Long abstract *Ann. de Derm. et de Syph.*, vol ii. (1891), p. 776. Short abstract *Brit. Med. Jour. Supt.*, April 18th, 1891.

† *Literature.*—Hirsch's *Geographical Pathology*, vol. ii., p. 379. A full account, with bibliography; from this work and the article by Iryz, the above description is chiefly abstracted. *Brit. Med. Jour.*, vol. ii. (1882), p. 903, abstract from paper by Dr. Iryz read before Academy of Medicine in Mexico. *Med. Record*, 1882, p. 175. E. Lier, letter from Mexico to *Monatsh. f. prak. Derm.*, vol. xiv. (1892), p. 447, with history and some Mexican bibliography.

of the discolorations in other parts of the world, such as the lota of Surinam, reported too imperfectly to be available for identification, may be of the same nature. The pinta occurs extensively throughout New Granada, Brazil, especially in the province of São Paolo, in certain parts of Venezuela, and on the west coast of Southern Mexico, and sparsely in Panama, Peru, and Chili. It is said to have been imported into Mexico in 1775 from South America, where it was prevalent before the Spanish conquest of Mexico; but this can scarcely be correct, as it is mentioned in the *Encyclopædia* of Polanko of Mexico in 1760, and was the subject of Aztec prayers for centuries. It was described by Alibert in his 1832 edition.

Symptoms.—The disease consists of scaly spots, very variable in colour, shape, number, and size, and appears to be allied in its characters to tinea versicolor. It usually begins on uncovered parts, such as the face and extremities, but may affect the scalp and all parts of the body except the palms and soles. It varies in extent from quite a small area to almost the whole body surface. New patches may be continually forming. While they increase in size, both by peripheral extension and by confluence with their neighbours, they are not at all, or very slightly, raised above the surface. Their shape may be roundish or irregular, sharply defined or shading off into the healthy skin, of black, greyish, blue, red, or dull white hue. The first three are superficial; the red and white affect the rete mucosum and corium. There are thus two classes: the epidermic and sub-epidermic. Sometimes all these colours are present on the same individual, though at first all the spots were of one colour, and only at a later stage were the new spots of different tint, or the patches may be of uniform tint throughout the whole course of the disease, and the individual patches never change colour after they have come out. The patch is furfuraceous at first, chiefly in the black and blue forms, but the scales are larger in advanced cases, and the surface usually feels rough and dry, seldom moist and greasy or glutinous. In the red form, ulceration sometimes occurs. In hairy parts, the hairs get thin, turn white, and ultimately fall out. Some of the blue cases look as if tattooed with gunpowder, while the white patches have a cicatricial aspect, with a dark ring, and the skin is hard with diminished sensation. The itching is in proportion to the scaling, and may be very intense, and the patient's emanations

are offensive, smelling, according to some, like foul or mildewed linen, or, as others say, like cat's urine. No other symptoms are present, though, according to some authors, severe gastric symptoms, which last from four days to a week, precede the outbreak in a few cases, the skin eruption not appearing until six weeks later; probably such symptoms have no relation to the disease.

While the disease is always chronic, lasting months or years, or even all the patient's life if untreated, it often spreads but very slowly, or remains stationary for a long time in the red or white form, while in the black and blue variety the extension may be very rapid and general.

Etiology.—It attacks both sexes and all ages except infants in arms. Lier says that blue pinta is not contagious, and failed to inoculate his own arm; but most authors agree that the disease is undoubtedly contagious, and, as might be expected, its extension to others is generally favoured by dirt and neglect, and hence it is more common in the poor than in the rich, and among the dark races and half-castes than among the whites, though all are liable to it under circumstances favourable for its development. A tropical climate which includes moisture as well as warmth is evidently one essential factor, while an elevation above five thousand feet, and a mean temperature below 60° F., are unfavourable conditions. Though it sometimes commences in sound skin, a dermatitis such as eczema favours its development.

Pathology.—Gastambide has clearly shown its fungous origin. The fungus is situated in the epidermis, and his observations favour the view that the black and blue spots are more superficial, never going beyond the horny layers, and when the disease is cured, leaving no trace behind; while in the red and white, the deep parts of the rete are involved, and Iryz says the corium also, and permanently white spots may mark the site of the previous eruption; in one of Iryz's cases, the whole body, including the hair, was left quite white.

The fungous elements consist of roundish and oval spores about eight μ in diameter, and tapering branched mycelial threads, to which the conidia are attached.

The *diagnosis* can offer no difficulty in countries where it is endemic, and the *treatment* is the same as for tinea versicolor, but, like it, the skin must be watched carefully for some time to eradicate any recrudescences from spores which have escaped destruction.

B. ANIMAL PARASITES OF THE SKIN.

The most important animal parasites of the human skin, either from their frequency or the character of the lesions, are, in Europe: the itch acarus, lice of the head, clothes, or pubes, bugs, and fleas; and in tropical countries, the guinea-worm, the chigoe, and mosquitoes. There are, however, a large number of other parasites which attack man more rarely. These have been divided by Geber, in his valuable article in Ziemssen's *Handbook of Skin Diseases*, into three classes:—

I. Stationary parasites which prey almost exclusively on the human skin.

II. Temporary or occasional parasites: (*a*) sexually mature; (*b*) in their larval condition.

III. Accidental parasites which do not voluntarily attack man, but when on the skin injure it from the instinct of self-preservation.

The following list is borrowed from his article; but, long as it is, it is not quite complete:—

I. Stationary Parasites.

Sarcoptes scabiei hominis, itch mite.
Demodex (acarus) folliculorum hominis.
Pediculus: (*a*) Pediculus capitis, head louse; (*b*) Pediculus vestimenti, clothes louse.
Phthirius pubis, crab louse.
Pulex irritans, flea.

II. Temporary Parasites.

1. In sexually mature condition

Sarcoptes scabiei communis.
Dermanyssus avium, bird mite.
Ixodæ, ticks: (*a*) I. ricinus, reduvius; (*b*) Argas reflexus, Persicus, Americanus.
Cimex lectularius, bed bug.
Pulex s. Sarcopsylla penetrans, sand flea.
Tabanidæ, horse flies; Tabanus, Chrysops cœcutiens, Pangonia.
Culicidæ, Culex pipiens, Simula colombacencis, S. pertinax.
Hirudinæ; H. medicinalis, officin., and others, Hæmentaria Mexicana.

2. In larval condition.

Cestodes: Cysticercus cellulosæ.
Echinococcus, bladder worm.
Trematodes: Distoma hepaticum, liver fluke.

Nematodes : Filaria medinensis.
Filaria sanguinis hominis.
Oxyuris vermicularis.
Leptodera.

Muscidæ : (*a*) M. domestica, cadavarina, vomitaria, and L. Cæsar; (*b*) Sarcophila Wohlfarti (Portschinsky) ; Sarcophaga carnaria.

To these may be added Lucilia hominivora in America ; Stomoxys calcitrans ; Glossina morsitans, known in Central Africa as tsetse, etc.

Œstridæ : Hypoderma (vers macaque in Cayenne), species of Cuterebra and Dermatobia (Œstrus humanus, Humboldt).

III. Accidental Parasites.

Species of Dermatodectes and Symbiotes (Gerlach).

Leptus autumnalis, harvest bug.
Kritoptes monunguiculosis.
Clothilia inquilis, book worm.

SCABIES.

Synonyms.—Itch ; *Fr.*, Gale ; *Ger.*, Krätze.

Definition.—A contagious disease due to an animal parasite, characterised by a special lesion due to the burrowing of the female, and multiform lesions from scratching.

Scabies is an extremely common disease among the poor in England, and not rare in the better classes, constituting in my experience 8 per cent. in hospital and 3 per cent. in private practice.

In Scotland, it is still more common. McCall Anderson met with it in one-fourth of his hospital cases, and in 4·4 per cent. in private practice. On the other hand, it is comparatively rare in the United States, less than 1 per cent. according to the Dermatological Association statistics ; but in New York, Bulkley met with it in 2 per cent. in hospitals, and only 2½ per thousand in private practice. It is, however, becoming more prevalent. White of Boston notes an enormous increase, from nine cases in 1880 to one hundred and sixty-five in 1888. Wigglesworth estimates the increase from 3 to 10 per cent. On the Continent it is very common.

Symptoms and Pathology.—The clinical picture of scabies is made up of two elements : the burrows, or cuniculi, and the attendant

inflammation excited directly by the acarus scabiei ; and indirectly, the lesions produced by scratching, and the modifying influences of pressure, friction, etc. The result is a great multiformity of lesions, which, combined with their distribution, is in itself suggestive of the nature of the disease, and enables a practised eye to detect a well-marked case at a glance.

In order to understand the process, it must be premised that the male wanders free on the surface or is entangled beneath the crusts, and, with the exception of impregnation, takes no part in the production of the disease, the female alone being responsible for all the symptomatic eruption. When placed on the skin, she burrows into it with her head, the bristles on her hind legs tilting her up, so that the head is inclined to the skin and penetrates below the surface, it is said, within half an hour. Then the impregnated female lays an egg, tunnels farther, laying one or two eggs almost every day, amounting to about fifty altogether, soon after which she dies, living altogether about two months. The ova take from five to fourteen days to hatch out ; but the way the new-born acarus reaches the surface is not certain, the most probable being that, the burrow being oblique, and the oldest end being nearest the surface, in the natural course of exfoliation of old epidermis, the most mature ovum reaches the surface first ; thus the young acarus gains its freedom, and is ready to commence a new life cycle.

The female selects generally the thinnest part of the skin, such as the web between the fingers and other parts of the hand, the flexures of the wrist, axillæ, fork, and penis, and other parts of the genitals ; but in long-standing cases among the unwashed, no part is exempt except the head and face, which are never attacked in this country, except in infants in arms. The marks of scratching are, however, much more general, and exist in all readily accessible parts. In men, the pruritic eruption is mainly on the anterior surface, from the level of the nipple to the knees, and posteriorly, only on the buttocks. In women and children, the arrangement of their clothes allows them to get at the lower part of the back, and the signs of scratching there are as well marked as in front.

When the skin is first penetrated by the acarus, inflammation is often set up, and a papule, vesicle, or pustule is the consequence. These papules or small vesicles, individually indistinguishable

from eczema vesicles, are the most common form of eruption, but the inflammatory symptoms are absent in many burrows. The tract extends and forms a sinuous, irregular, or rarely straight line, which in very clean people is white, but, as a rule, is brownish or blackish from dirt being entangled in the slightly roughened epidermis; the length of these burrows is generally from an eighth to half an inch, but occasionally much longer, Hebra having noticed one four inches long. When a pustule is formed, part of the burrow lies in the roof, but the acarus is always well beyond the pustule or vesicle, or, if there is none, lies at the far end, and with a lens may often be discerned as a white speck in the epidermis. The degree and number of inflammatory lesions vary much; there may be no inflammation at all about many burrows, or the whole hand, especially in children, may be covered by pustules, vesicles, or papules, and indeed a pustular eruption on the hands is always strongly suggestive of scabies; there is, however, *no grouping or arrangement of any of the eruptions, as in eczema, the lesions being scattered about irregularly*. It must be remembered that burrows are not always present, from various causes. If the disease is recent, it may not have got beyond the papular or vesicular stage, while in washerwomen, bricklayers, or others whose hands are constantly soaked in water or alkaline fluids, or who have to scrub their hands violently, the burrows become destroyed. The eruptions due to scratching have already been described in the description of the "scratched skin," and comprise excoriations, erythema in parallel lines, eczema, impetiginous or so-called ecthymatous eruptions and wheals, and the inflammatory scab-topped papules often left after the subsidence of the wheals, especially in children. In carmen, cobblers, tailors, and others who sit on hard boards for hours together, pustular and scabbed eruptions, situated over the ischial tuberosities, are so abundant and constant as to be practically diagnostic of scabies in such people. Similar eruptions may be seen where there is friction from trusses, belts, etc.

Variations.—In a few cases, the vesicles and pustules on the hands are very like variola. In the variety known as Norwegian itch,* which is seen in its highest intensity in lepers, in whom the disease has been allowed to grow unchecked, and in people among whom washing is indulged in with the utmost caution, the lesions

* *Syd. Soc. Atlas*, plate xxvii.

are not limited to any special regions, even the face becoming involved, and the number of acari is very great, owing to the protection afforded by the extensive crusting. The palms and soles are covered with thick and leathery crusts, with yellow horny outgrowths of epidermis ; the nails degenerate, splitting, breaking, and shrivelling from damage to the matrix. On the face, ear, and scalp, the crusts are pustular, containing acari and their *débris* in great quantity, just like the mange or scabies of animals, especially that of sheep, camels, and rabbits.

In a young tuberculated leper under my care, who sweated profusely for some months before his death, his limbs were thickly encrusted with an epithelial, mortar-like deposit, which was ascribed to the sweat disturbance. Scabies was never suspected, as the itching was never very great, and he had none of the usual signs ; but when he died, I sent some of the skin to the pathological laboratory of University College, and Boyce discovered that the epidermis and encrustations were simply riddled with acari in all stages.

In sarcoptic itch, contracted from the horse, the face and scalp may also be attacked ; an extreme instance of this is recorded by Besnier,* the whole body being also involved.

Children.—In infants in arms, the scabies eruption may be present over the face and scalp, from the child being held close to its infected mother ; for a similar reason, burrows are often found on the hips and feet of infants, infected from the mother's hand. Acute inflammation is much more easily set up in children ; consequently pustular eruptions are much more common and extensive, both directly due to the irritation of the acarus, and also from impetigo contagiosa (ecthyma), resulting from scratching ; urticaria is also more easily excited.

Etiology.—The disease is always propagated by the deposition of an impregnated female upon the skin, but, as a rule, it is only after prolonged contact with infected people or objects, as in occupying the same bed, handling an infected person's tools, which are familiar examples ; but I believe that it is very rare for ordinary contact, like shaking hands, to be the cause of contagion. No age, sex, or condition is exempt from it, but dirty people are more liable to it, as the acarus has a better chance of burrowing before it is disturbed.

* *Ann. de Derm. et de Syph.*, vol. iii. (1892), p. 623.

Anatomy.—The description of the animal is sufficient here. It must be remembered that an acarus is not an insect, but having eight legs, belongs to the tracheal order of the class Arachnidæ, viz., the acari.

The female is just visible to the naked eye as a minute, white, shining, roundish body, one-eightieth to one-sixtieth of an inch long (·3022 to ·4322 mm.), and about two-thirds of its long diameter in width. Attached to its conical, stumpy legs are four suckers anteriorly and four setæ or bristles posteriorly, one to each limb; on the back are numerous transverse

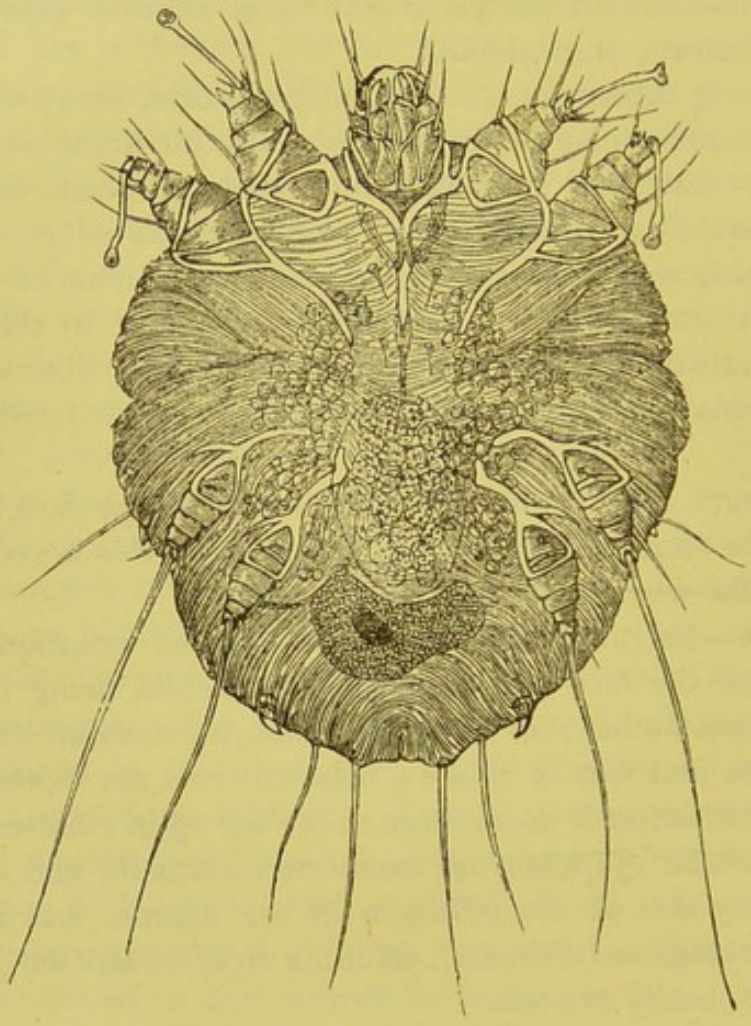

Fig. 82.—Mature pregnant female acarus. × 300 (Kaposi).
In the interior of the abdominal cavity there is a mature ovum ready to make its escape.

striæ and serrated lines, with a few short, nail-like setæ; while on the under surface are the legs, a few setæ, and sometimes an ovum (fig. 82).

The male is about two-thirds the size of the female, has a small sucker on each of the inner posterior pair of legs, for the purpose of copulation, and a well-marked genital organ, consisting of a chitinous framework, in the shape of a horseshoe, which supports the penis (fig. 83).

The larva has at first only six legs, and it is not until after its second or, as some say, its third moult that it is fully developed and has its full

complement of eight legs; it, too, burrows a short distance while it is undergoing its moults (fig. 84). When a cuniculus is snipped out with scissors and examined, the ova are found in it in all stages of development, with fæcal and other *débris*, with the most mature ovum at the oldest end of the burrow and the mother acarus at the other (fig. 85).

Contrary to the usual statement, Török, who examined seven burrows, stated that the burrow was in the lowest part of the middle horny layer, and not in the rete. In the case of the leper before described, this was correct for the great bulk of them, but here and there one acarus among a score would be found in the upper part of the rete.

Diagnosis.—The diagnosis of scabies may be very easy or very difficult, according to the development of the disease and the

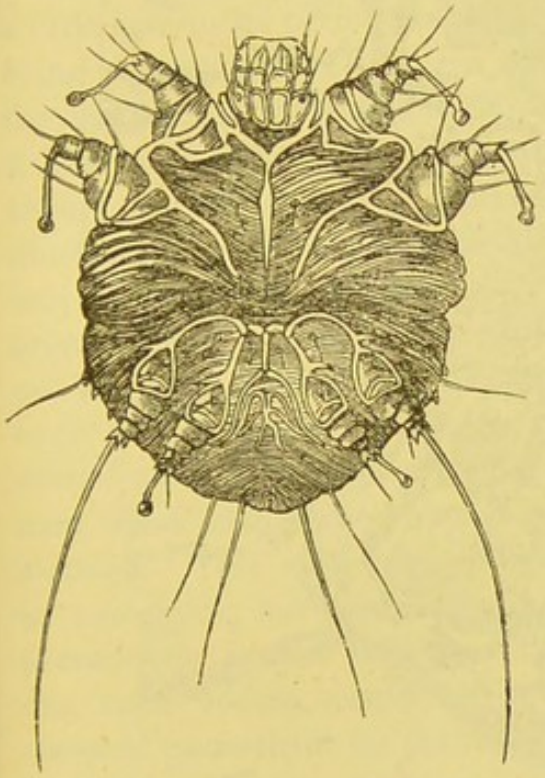

Fig. 83.—Male acarus. × 300 (Kaposi).

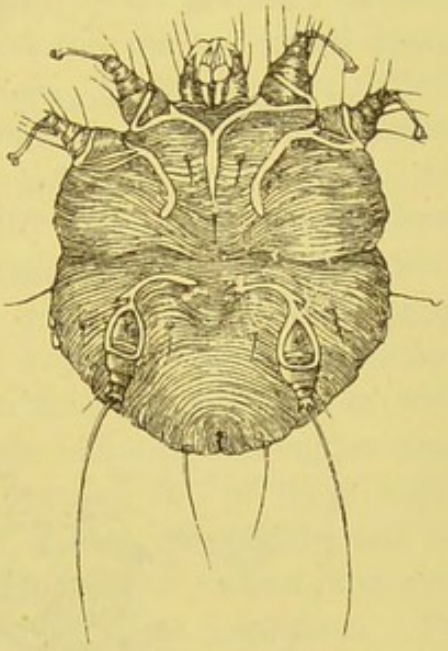

Fig. 84.—Larval acarus with only six legs and comparatively few bristles (Kaposi).

cleanliness, or otherwise, of the patient. In a well-marked case, the characteristic feature is the presence of papules, vesicles, or pustules, chiefly on the hands, wrists, and genitals, individually looking like *eczema*, but as a whole scattered rather than grouped, a very important point; *e.g.*, one or two vesicles only would be present on the web of the fingers in scabies, while in eczema there would be a patch of small vesicles. In such a case, close investigation would probably discover the characteristic burrow, and from this an acarus may be picked out by finding the more recent end

of the burrow, from its being a little redder, and then with a needle the epidermis may be broken over the little white speck, and the

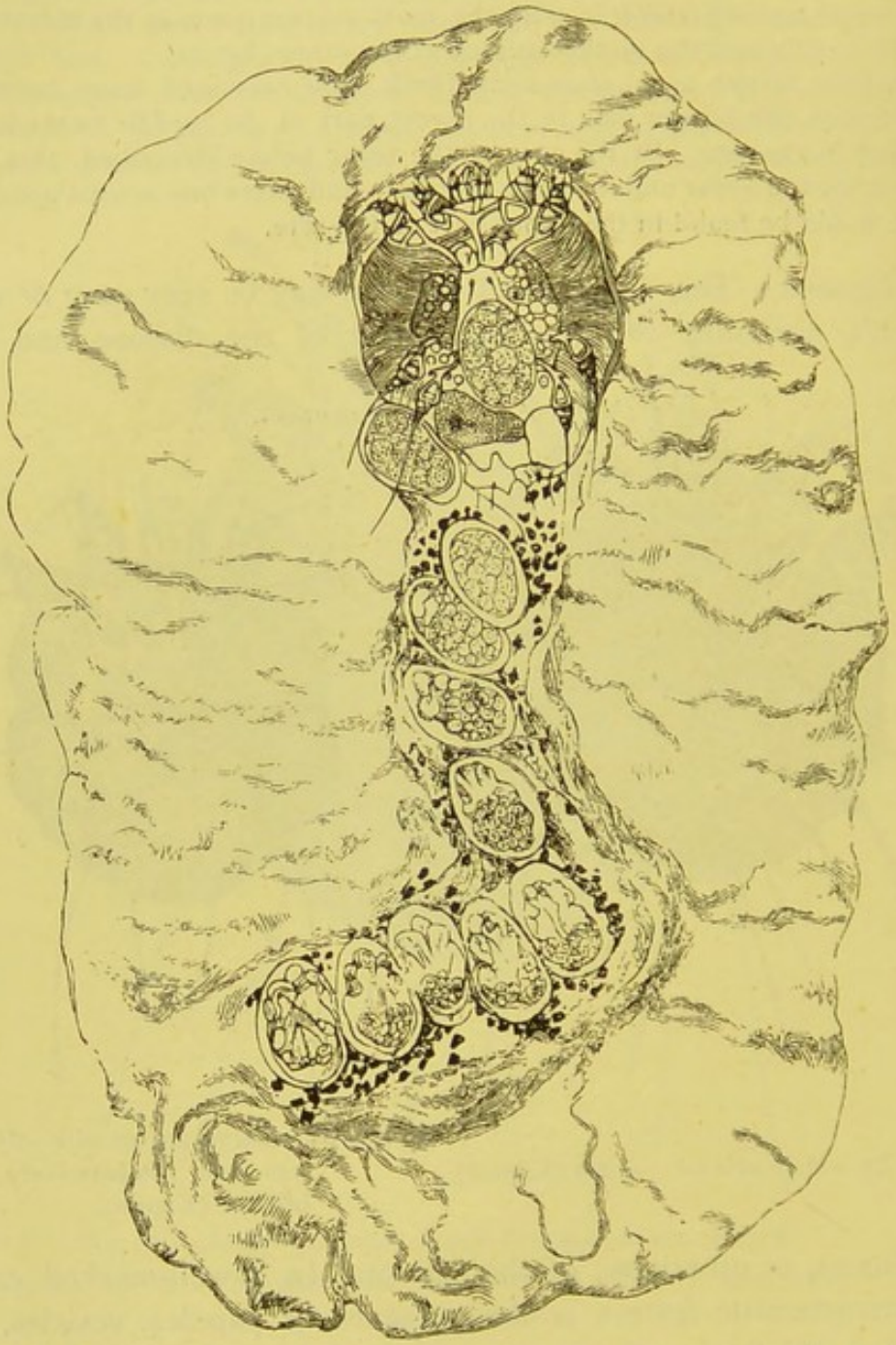

Fig. 85.—A burrow formed by an acarus within the epidermis, containing a female acarus with the head directed to the blind end of the burrow. In the acarus is an ovum. Behind the acarus, and in a row one after the other, with their long axis placed transversely to the long axis of the burrow, there are ten ova. In the three youngest of these the contents has already undergone subdivision. From the fourth to the tenth the progressive development of the young acari, in relation to the age, may be seen, beginning at the head, and, at the tenth ovum, the development is almost complete. Between the ova of the acari are black irregularly shaped fæcal masses.

point inserted, when the acarus generally clings to it. A good place to hunt for the burrows is the inner border of the hand, the fingers, and the body of the penis. If the patient is a male and can be stripped, the distribution of the scratch-marks, mainly from the level of the nipple to the knees, and the ecthymatous pustules on the buttocks, of those who sit on hard seats, are equally suggestive of scabies, and in a general survey, the multiform character of the eruption ought to excite suspicion.

Prognosis.—Scabies is always easily curable if sufficient precautions are taken against reinfection.

Treatment.—The treatment is simple and effectual, but requires a little care in its performance, something more than a prescription being necessary. There are two evils to be avoided: treating the patient too little and treating him too much. In all cases, it is necessary to open up the burrows; to do this, the patient should be well soaked in hot water for twenty minutes, soaped thoroughly, preferably by rubbing in soft soap, if the skin is not too delicate, and then scrubbed pretty vigorously with a hard bristle brush. The parasiticide should then be firmly rubbed on all over in a chronic case, or only in the affected parts, such as the hands and genitals, in a recent one. The patient should sleep with the applications on all night, and take an ordinary warm soap-and-water bath in the morning, putting on clean clothing. This cycle may be repeated for two or three nights in succession, but never more; and if done thoroughly, and the precautions against infection taken, success is certain, and even one such course would be effectual in most instances. The classical parasiticide for scabies is sulphur, for which there are many formulæ. Hebra's modification of Wilkinson's ointment is sulph. sublim., olei. cadini āā ʒij, cretæ prepar. ʒiiss, sapon. viridis and adipis āā ℥j; it is very efficacious, but too irritating for any but very tough skins. Hardy's Helmerich's ointment is potass. carbonat. ʒj, sulphuris sublim. ʒij, adipis ℥iss; this is the ointment used at the St. Louis Hospital at Paris, where scabies is treated wholesale and cured by one application. The patient is first rubbed with green soap for half an hour, then soaked in a hot bath for half an hour, and then the ointment well rubbed in, and the patient puts his clothes on without wiping off the ointment, and he is then discharged cured. Both these ointments are too strong for most English skins. Simple sulphur

ointment ʒj to the ℥j is generally sufficient, and the addition of balsam of Peru makes it less unpleasant. In workhouse infirmaries the liq. calcis sulphidi is much used. After a warm bath, with plenty of soap and scrubbing, the solution is painted on pretty freely with a stiff brush; after drying spontaneously, the patient is put to bed, and a warm bath next morning completes the cure as a rule. It has the advantage of being easily applied, and is effectual, but is best adapted to the tough skin of the workhouse casual. Vlemingkx's lotion, much used for the Belgian army, is a similar fluid. All these sulphur applications have the disadvantage of exciting the so-called sulphur eczema in the skin, which becomes red and rough, sometimes even weeping.

At University College Hospital, where there is every facility, sulphur baths are used. Four ounces of sulphide of potassium are dissolved in thirty gallons of water at a temperature of 100° in a porcelain bath; the patient soaks in this for a quarter of an hour, and is then well scrubbed with a hard brush, and allowed to soak for another quarter of an hour. While he is taking the bath his clothes are put in a disinfecting oven. Three baths are generally ordered to make sure, but one or two are quite enough as a rule. The treatment never fails, unless the brush gets too soft to open up the burrows. When next the patient is seen, if he still complains of irritation, he has calamine lotion to soothe the skin which has been irritated by the long previous scratching or by the treatment. For infants and in private practice, after the preliminary soaking and scrubbing, naphthol 15 grammes, cret. prep. 10 grammes, sap. mollis 50 grammes, adipis 100 grammes, as recommended by Kaposi, is rubbed in. I can speak of it in the highest praise. It is effectual, has no smell, and is not liable to irritate the skin, as sulphur does. It is, however, too expensive for public practice. I generally omit the soft soap.

McCall Anderson prefers styrax ointment, styracis liquidi ʒj, adipis ʒij, or it may be prescribed with olive oil as a liniment. Carbolic oil 1 in 20 and a 5 per cent. creolin ointment are also used. Some more formulæ are given among the animal parasiticide formulæ in the Appendix. Whichever of the many applications be selected, it should always be borne in mind that the patient does not cease to itch immediately on the

death of the acarus, and that in many persons it takes a long time before the irritated cutaneous nerves will settle down. Alkaline baths, and calamine lotion, and other soothing or anti-pruritic lotions should be employed, and the patient's mind reassured as to the disease being really cured. Sometimes some of the better classes become quite hypochondriacal on the subject, and it is most difficult to persuade them that the acari are not alive, "crawling about them." The stronger, especially the sulphur applications are often responsible for the continuance of the itching, and it is important to recognise this, as of course the continuance of the parasiticide is only adding fuel to the fire. Three applications ought always to be sufficient; and if the patient chance to get reinfected from wearing infected gloves, etc., a little naphthol ointment rubbed into the fresh lesions is all that is required. Passing a needle through each papule ensures the parasiticide reaching the acarus. A troublesome complication, chiefly after sulphur treatment, is a folliculitis of the thighs, which may go on for many weeks. Painting with liq. carbonis detergens, sometimes slightly diluted, is generally effectual. In order to prevent reinfection from the clothing, the underclothes should be thoroughly boiled, while cloth clothes may be well ironed, the iron being as hot as it can be without injuring the clothing. It is not necessary to bake them, as is done in pediculosis, though that is the simplest plan where opportunities exist. Obviously, if there are several in one household affected, they must be all simultaneously treated.

Sarcoptes Scabiei Communis. Under this head are included various other species of the sarcoptes, or acari, which form burrows, in which the female lives and deposits its ova. They affect animals, such as the horse, sheep, dog, wolf, fox, and pig, and may sometimes be transferred to man.

Although almost indistinguishable in their anatomy and habits, and capable of exciting a scabies eruption of ordinary character, they cannot live permanently in the human skin, and spontaneous recovery will ensue in six or eight weeks. The treatment would be the same as for ordinary scabies.

Another species, the sarcoptes minor, lives only a few days on the human skin, or excites a transitory local eczema.

Dermanyssus Avium et Gallinæ. Bird mites, found on fowls

and other birds, occasionally attack man during sleep, and excite eczematous or other irritation of the skin, which gets well without treatment.

Layet of Bordeaux has described an acarus which irritates the skin, but does not burrow, and affects those who have to handle vanilla.

LEPTUS AUTUMNALIS.

Synonyms.—Harvest bug ; Mower's mite ; *Fr.*, Rouget.

This is the six-legged larva of a species not yet determined, of the family Trombidæ. It is of a brick-red colour, oval in shape, from $\frac{1}{3}$ to $\frac{1}{2}$ mm. long, and $\frac{1}{3}$ of a mm. broad, and has a fused cephalothorax, divided by a transverse furrow, from the abdomen.

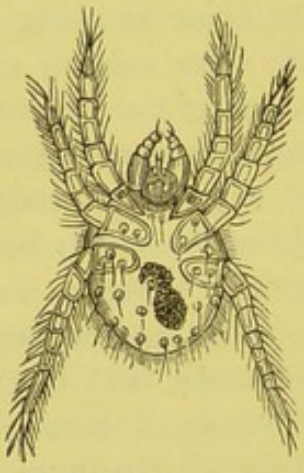

Fig. 86.—Six-legged larva of the leptus autumnalis (Küchenmeister).

The legs are long, six-pointed, and with two claws on the tarsus, and there are no discoverable sexual organs (fig. 86).

Symptoms.—The animal bores its head only into the skin, producing bright red papules and wheals, which itch violently, and become proportionately scratched, with the usual consequences. In one of my cases, a general attack of impetigo contagiosa resulted. It usually attacks the ankles and legs first, but may spread to other parts of the body. It is seen chiefly in July and August, in people who have been in the fields, or among gooseberry and currant bushes, etc., and in severe cases may be attended by slight febrile symptoms. Duhring, on the authority of Professor Ritz of St. Louis, describes two other species, with similar habits, as occurring in the South-western States of America, viz., the

leptus Americanus, American harvest mite, and the leptus irritans, or irritating harvest mite. Geber, in Ziemssen, describes another larva which is common in barley, and affects the reapers and loaders; it is an eight-legged, yellowish-white animal, with an oval boring apparatus, but without sexual organs. It produces urticarial lesions round the mouth of the follicles, and the animals may be found in their neighbourhood beneath the epidermis. In severe cases, the urticaria goes on to more or less severe eczematous dermatitis. The treatment is by mild parasiticides, such as are used in scabies, naphthol or weak sulphur, or white precipitate ointment. The soaking and scrubbing, necessary for scabies, are superfluous here.

DEMODEX FOLLICULORUM.

Synonyms.—Acarus folliculorum; Steatozoon, Entozoon, or Simonea folliculorum.

This parasite was first discovered by Henle in 1841 in the ceruminous glands, and shortly afterwards by G. Simon in the sebaceous glands, the latter giving the first clear description of the animal. Meguin assigns its zoological position to the family Demodicides, of which it is the only genus. It gives rise to no symptoms in the human subject, but in the dog this or another species produces follicular mange,* attended with free suppurative folliculitis, loss of hair, emaciation, and even death, if not treated in time. This parasite is pretty generally distributed, being found in about one person in five easily, and with care in almost every one, but not in the new-born, and not in every sebaceous gland or comedo. It is easiest found in people with greasy skins by scraping the surface of the face with the back of a knife, and examining the scrapings in a little oil or glycerine, with a power of two or three hundred diameters. It may also be found by expressing several comedones and teasing them out in glycerine. There may be one or more, or even as many as a dozen, in one follicle, and they may be found in the sebaceous glands of the face, ears, and trunk.

Anatomy.—This acarus is worm-like in form, varies much in length, from about $\frac{1}{6}$ to $\frac{1}{3}$ of a millimetre, or $\frac{1}{12}'''$ to $\frac{1}{6}'''$, and has three segments:

* Sparks, "Disease of the Skin produced by the Acarus Folliculorum," *Med. Chir. Trans.*, vol. lvii. (1874), p. 239, with bibliographical notices and a plate.

cephalic, thoracic, and abdominal. The head is about $\frac{1}{5}$ of the whole body, broader posteriorly, and provided with three-jointed pedopalpi and mandibles, moving like scissors. From this part extends the œsophagus, a delicate membranous tube, dilated at the end into a stomach close to the fourth pair of feet. The thorax is $\frac{1}{4}$ of the entire length, and is barrel-shaped, and to it four pairs of three-jointed rudimentary legs are attached. The abdomen is compared to the finger of a glove, being cylindrical and tapering towards the end, which is rounded. It is rather more than half the length of the body, and has an anal cleft on the under surface close up to the thorax. The male and female organs of generation are well differentiated, and according to Geber it is oviparous. The larva has only six

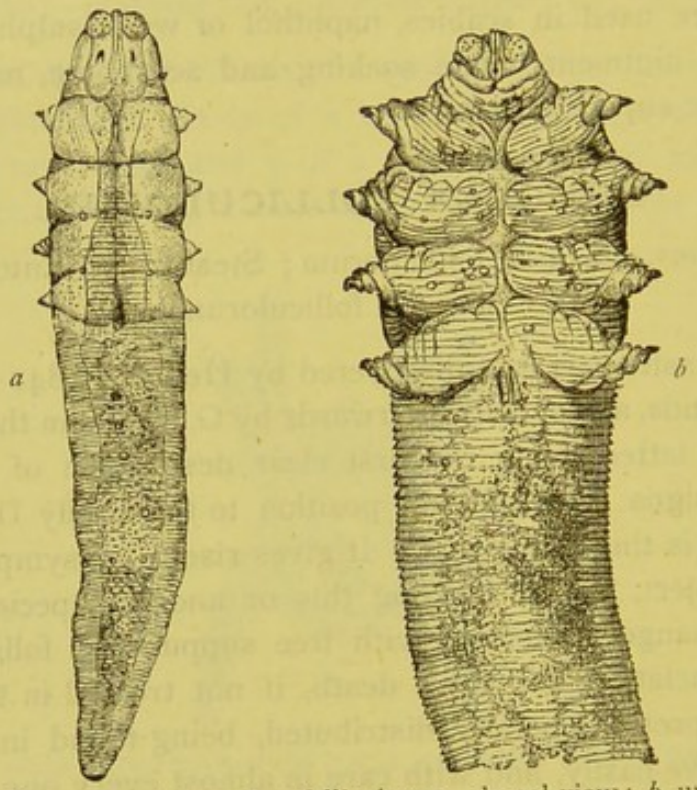

Fig. 87.—*a*, fully matured demodex folliculorum, dorsal view; *b*, under surface of anterior portion of body, very highly magnified (Nayler).

legs, and, like the scabies acarus, undergoes metamorphological changes before it is sexually matured, the abdominal part becoming longer and more tapering, and the cephalic part more differentiated (fig. 87).

PEDICULOSIS.

Deriv.—φθείρ, the louse.

Synonym.—Phthiriasis.

These terms now signify the symptoms produced directly or indirectly by the three kinds of lice to be presently described. Formerly, however, even up to the beginning of this century, the

name phthiriasis was given to an imaginary disease, in which the pediculi bred in the flesh of the victim, in enormous numbers, and consumed him to the very bone.

No one, except Landois, now believes that such a disease ever existed. Indeed, the life history of the pediculus absolutely negatives the possibility of a subcutaneous existence.

This much, however, may be admitted—that certain people are much more attractive as hosts than others, and that some cachectic states offer favourable conditions for the rapid development of pediculi. In the post-mortem room even some corpses develop pediculi capitis very much more abundantly than others, and that, too, where there was no reason to believe that they existed during life. Of course in all cases the pediculi come from without. While either of these terms logically refers to lice in general, when used without qualification, custom restricts the meaning to pediculi corporis.

I. Pediculus Capitis. This parasite is extremely common among the children of the poor, but, unlike scabies, is rare in the cleanly.

Symptoms.—The insect on the scalp excites no special lesion directly, but produces such intolerable itching that the patient is obliged to scratch vigorously, not only where the pediculus is at work, but all over the scalp.

In healthy, well-nourished people, the pediculi, if in moderate numbers, may lead to nothing beyond this. They keep where the hair is thickest, viz., the occipital region; here excoriations from the nails soon appear, and before long, especially in the poorly nourished, impetigo contagiosa is produced. At first discrete pustules, covered with green-black crusts, are formed, or, if allowed to go on, several of these coalesce into one or more large patches, but nearly always with some discrete scabbed spots beyond the main patch. Many authors describe this eruption as a pustular eczema, but the pus is always inoculable, and the characteristic lesions of impetigo contagiosa are often present on the body also. This eruption is so constant that a *pustular eruption limited to the occipital regions is almost diagnostic of pediculi capitis.* Where no means are adopted to kill them, and where the hair generally is neglected, the pediculi extend more forward, and the nits and impetigo lesions may be found all over the scalp.

These pediculi are always confined strictly to the scalp, but

where the hair is allowed to hang down, similar lesions may be seen on the neck, also mixed with excoriations from scratching, but the impetigo pustules are smaller as a rule. In cases of extreme neglect, the hair gets matted together from the glutinous pus, and this, with the pediculi and other *débris*, scabs, scales, dirt, and fungi deposited from the atmosphere, make up the condition known as **plica polonica.**

The occipital glands, and in severe cases the other neighbouring glands, undergo sympathetic enlargement, are tender, inflamed, and

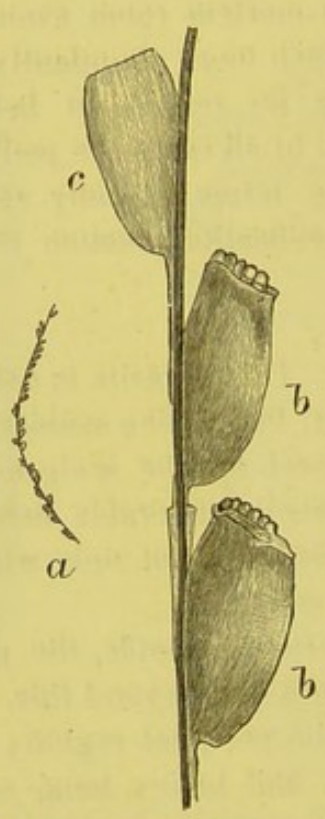

Fig. 88.—Ova of pediculi capitis.

a natural size of hair with twenty-nine ova upon it; *b*, *b*, ova, magnified, showing the cement attaching the ovum to the hair shaft and the operculum attached; *c*, empty ovum, operculum fallen off.

may even suppurate. The mothers always state that the lumps came first, then the sores, and then the lice, this reversal of the actual order acquitting them, as they think, of neglect.

Where the pediculi are only present in moderate numbers, the nits are more easily seen than the pediculi. They form small white specks, very like a small scale, but on pulling out the hair the nit is seen to be situated unilaterally on the hair shaft, while a scale is generally pierced by the hair. Moreover, on passing the fingers gently along the hair the scale comes off, while the nit is glued

firmly on. Commonly there is not more than one nit on a single hair, but where the pediculi are swarming they economise space, and I have counted twenty-nine strung at short intervals on one hair.

When the pediculi are sparse, the impetigo contagiosa is often the only disease complained of, but scattered scabbed lesions, for the most part limited to the occipital region, should at once lead to careful examination, when the lice or their ova will certainly be discovered.

Etiology.—Pediculi capitis occur at all ages, but are most common in children. They are always conveyed from one person to another, either by direct contact, as in persons sleeping together, or by using the same hat, brush, comb, etc.

Fig. 89.—Male pediculus capitis, showing its system of tracheæ and its respiratory stigmata (Küchenmeister).

Naturally pediculi are more frequent and flourish most in those who neither wash nor brush their hair very frequently.

Anatomy.—The head louse is about two mm. long and one mm. broad. The female is much larger than the male, and exists in much greater numbers. The young hatch out after six days' incubation, and are fully developed in twelve or fourteen days more; and as each female lays from fifty to sixty eggs, they multiply with great rapidity.

The head louse is smaller than the body or clothes louse; its head is acutely triangular, while that of the pediculus corporis is nearly oval; it has a broader thorax, and the margins of the abdomen are darker. The legs are shorter, and it is less active.

In a male, the last abdominal segment is rounded off and prominent. There is a valvular opening in the back, the common anal and genital opening. The penis, therefore, which is simple and wedge-shaped, protrudes on the dorsal surface.

The female has the last abdominal segment deeply notched at the apex,

in which the anus is placed. The vaginal aperture is on the ventral surface. It is clear, therefore, that the female is uppermost in copulation.

The colour of the pediculus varies according to the colour of its host. On Europeans it is grey with blackish margins, on the Esquimaux white, on Negroes black, on the Chinese yellowish-brown.

Treatment.—If the patient is a child, and it is not necessary to preserve the hair, this should be cut off close, the crusts softened with oil and picked off, or the hair cut underneath them, and ung. hyd. ammon. freely smeared on; this kills the pediculi, disinfects the pus, the sores readily heal, and the nits are got rid of with the hair.

Where it is necessary, as in women, to preserve the hair, the pediculi may be killed by rubbing in ung. hyd. ammon., and the vitality of the nits destroyed by sponging small portions of hair at a time with the one in forty solution of carbolic acid; frequent combing will gradually detach the dried-up ova, or the cement will give way by sponging in the same way with a lotion of acid. acetic. ℥ij, hyd. perchlor. gr. 3, aquam ad ℥viij. A favourite and effectual application of Mr. J. Marshall for the nits and pediculi was æther ℥j, hyd. oleat 5 per cent. ℥j. Where the disagreeable smell is not a bar to its use, soaking the whole head freely with petroleum, such as is used for lamps, is immediately destructive to the lice, loosens the nits, and the impetigo contagiosa can then be treated with the ung. hyd. ammon. dil.

It is said that lice are quickly destroyed by infusion of quassia, to which a little glycerine of borax has been added. It has the advantage of being cleanly and free from smell, but it would not detach the nits.

II. Pediculus Corporis. *Synonyms.* — Pediculus vestimenti, phthiriasis.

Symptoms.—This parasite is a denizen of the clothes, in which it carries on all its life processes, except feeding. Like most parasites, it thrives most where the nutrition of its host is at a low ebb. It is, therefore, almost restricted to the aged and the dirty, the half-starved and cachectic, and is only seen in the young when they are very neglected, or in very close contact with older victims.

The lesions produced by its presence are mostly secondary and due to violent scratching, which the operations of the insect

induce. The only direct lesion is a minute hæmorrhagic speck, only just perceptible to the eye, and not at all to the touch.

Its production, according to Tilbury Fox, depends upon the mode of feeding. Schjödte describes this pediculus as follows: "It possesses no mandibles or other means of biting, but only a kind of sucking apparatus, consisting of a membranous tube, which can be protruded at pleasure. When the pediculus is about to feed, it inserts its labium into a sweat spore, and protrudes the lip. This lip is surrounded by a collar of hooks, which, though straight when at rest, become curved outwards when the lip is protruded, and thus afford a hold on the skin. The tube is now inserted, and the blood sucked up; and when the meal is concluded, the blood wells up into the orifice, and forms at first a pin's-point-sized, bright red speck, in a minute depression in the centre of a small, transitory wheal, and when the wheal, which itches violently, subsides, the speck of dried blood alone is left." I am, however, inclined to think it is only the excrement of the animal; but, however that may be, this "hæmorrhagic speck" is as distinctive as the burrow of the acarus is for scabies; but, inasmuch as it requires very careful looking for, the secondary lesions attract most attention. One of these may be easily mistaken for the characteristic speck. It is a small blood crust produced by the decapitation by the nails, of a slightly hyperæmic follicle. It is, however, not only larger than the "speck," but the nail, when passed over it, catches, while the hæmorrhagic speck is imperceptible. The secondary lesions are all those described under the "scratched skin" (p. 10); excoriations, wheals in parallel lines and spots, ecthymatous sores, and ultimately dirty brownish, in rare instances almost black, pigmentation, with thickened, leathery skin. In themselves, there is nothing distinctive, their diagnostic importance depending upon their localisation.

The favourite habitat of the pediculi is just underneath the neck-band of the underclothing. Here they first establish themselves, and are always most abundant, and it is at the nucha and shoulders, therefore, that their ravages are greatest, and the scratching most vehement. So much is this the case, that extensive scratch-marks on the nucha and shoulders, in an elderly person, are practically diagnostic of pediculi corporis; when to these are added the hæmorrhagic specks, the discovery of the pediculi themselves or their ova on the clothes is fortunately of secondary importance, for

too often, if the patient is lucky enough to possess a change of linen, he pays the doctor the compliment of putting it on just before his visit, and of course no pediculi are then to be found. Only in extreme cases, or at their meal-times, are they to be found on the body itself; and where they are so abundant, especially if in a young person, a pyrexia of several degrees, even as high as 106°·4, has been observed. This Jamieson thought was reflex from the cutaneous irritation; but Payne, with more probability, thinks it may be due to some poison inserted by the insect analogous to that of the mosquito, bug, etc. In cases of some duration in dirty people, the scratch-marks are to be seen all over the trunk, except between the shoulders, which are not easily reached; on the front and inside the thighs, but not much below the knees; on the arms, but not much below the elbows, while the hands and wrists are always free. The thickened, leathery, and much-pigmented skin is always a sign of chronicity, and, being common in tramps, is sometimes called "vagabond's disease." Hebra regards this as the pityriasis nigra of Willan, and gives a plate of it in his atlas.

The subjective symptoms are itching, burning, and formication, very intense, and always worse at night, not confined to the regions of the insect's operations, but reflexly felt anywhere and everywhere.

Etiology.—As already stated, phthiriasis affects the old rather than the young, the badly nourished and cachectic rather than the healthy and well-fed, the poor rather than the rich, dirt and neglect of ablutions being the other chief favouring conditions.

However suitable the subject, the disease is only acquired by the transference of the pediculi or their ova from another individual, spontaneous breeding being only a popular fiction. On the other hand, in young and vigorous subjects, even if exposed to infection, the lice will often fail to flourish, and even after infection in a young but half-starved patient, with cleanliness and good feeding alone, they will often die off. Clearly, therefore, unlike the acarus scabiei, the pediculus corporis has its preferences, probably some odour in the favoured person commending itself to the parasite. Indeed, I know of an instance in which four young medical men placed a pediculus in the middle of a small table, round which they stood, and the pediculus invariably went towards the same man, though they repeatedly changed their positions.

Kaposi, however, is of opinion, that it is only because the well-nourished and the better classes are seldom exposed, that they are seldom attacked; but this cannot be the whole truth, as pediculi corporis are seldom seen, even in dirty children. According to Cobbold, the pediculus of the cachectic is a separate species—P. tabescentium, or distemper louse.

Anatomy.—The body louse is larger than the head louse, which it otherwise closely resembles. The length is two to three mm. long (three-quarters to two lines), and it is half that in breadth. The head is more oval and elongated than that of the head louse; the antennæ are longer, the thorax distinctly segmented, the legs more developed, with larger claws, and it is, therefore, more active. The colour is dirty white, with

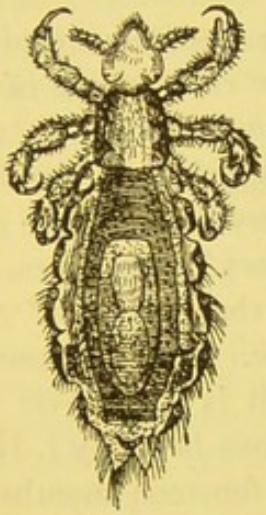

Fig. 90.
Female pediculus vestimenti (Küchenmeister).

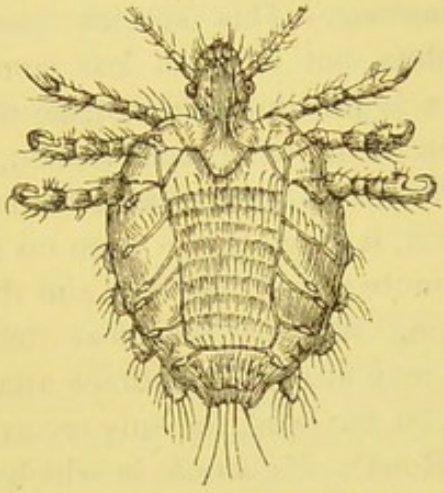

Fig. 91.
The pediculus pubis, or crab louse (Schmarda).

black margins. In other respects it is like the head louse, the larger size being the most conspicuous difference (fig. 90).

Diagnosis.—The diagnosis lies in the conspicuous evidence of scratching on the shoulders and nucha, especially if an elderly person, in its absence from the hands and wrists, and in the presense of the characteristic "hæmorrhagic specks." Search in the folds of the clothing, especially about the neck, will result in the discovery of the pediculi and their ova, unless the linen has been very recently changed.

Treatment.—The disease is always readily curable if it be borne in mind that the pediculi live in the clothes, and to them, therefore, the principal treatment should be directed. Where facilities exist, the clothes should be baked for some hours in a disinfecting oven, of at least 212° F. Failing the opportunity of this, repeated boiling

will be effectual for the linen. For the patient, free ablutions with soap and water and alkaline baths to soothe the irritable skin should be employed. The ung. staphisagriæ, freely rubbed in, kills any chance pediculi that may be on the skin, or on any part of the clothing in contact with the skin. Care must be taken against re-infection from the bedding, etc., which should be treated like the body clothes. In marasmic subjects, suitable measures in the way of feeding, cod-liver oil, and the removal, if possible, of the cause of emaciation, are valuable adjuncts.

III. Pediculus Pubis. *Synonyms.*—Phthirius pubis; Crab louse; *Fr.*, Morpion.

Symptoms.—This species resembles the pediculus capitis in its habits, but is much less common. The chief haunt of these insects is the pubic hair, from which they may spread up to the hair on the raphe of the abdomen, to the shaggy hair of the thorax, and thence to the axillæ and limbs. In very filthy people and in children, it may also be seen on the eyebrows * and lashes, when the minute nits on the hair and the "hæmorrhagic specks" on the adjoining skin are the most obvious feature. The whiskers and beard may also be sometimes attacked, but it is said never to be found on the head, the only recorded exceptions being by J. Heisler from Roná's *Poliklinik*, in which a child of fourteen months, who had slept with a servant-maid, had them not only on the lids and lashes, but all over the scalp, nits also being abundant there; and by Trouessart, who met with a case æt. five months, contracted under precisely similar circumstances.

Being much more stationary, of small size, and yellowish-brown colour, it is easily overlooked. Clinging usually to a couple of hairs, it digs deeply into the orifice of a hair follicle, and usually excites great and persistent irritation, though in some cases the irritation is very trifling. Scratched-topped papules are the commonest excited lesions, but if the pediculi are left to flourish, more severe eczematous inflammation is excited, and may spread beyond the site of its irritation. Pyrexia has been observed in connection with this species also (Payne).

Besides the pediculi and their minute grey-coloured nits, which are attached to the hair close to the skin, Morrison, in 1868,

* Cobbold considers that the lice that affect this position are a distinct species, which he calls the P. palpebrarum.

showed that finger-nail-sized, steel-grey spots of pigmentation (maculæ ceruleæ, taches ombrées) are sometimes observed deep in the epidermis of the affected areas; and Duguet, in 1880-82, showed that this pigment was contained in the thorax of the animal, opposite the anterior pair of legs, where there are known to be two pairs of salivary glands, and it is probable that the secretion is conveyed into the tissues through the haustellum. The blue spots are more marked in persons with clear, white, transparent skins, and in the months of February, March, and April. The blue spots are, therefore, mere stains of the epidermis, and disappear in a few days after the destruction of the pediculi. Jamieson thinks that the stains have some anæsthetic effect, as far as itching is concerned, though not for the other sensory phenomena.

Etiology.—This variety is more commonly seen among the well-to-do than the other kinds, being most frequently communicated during impure intercourse. Of course it may be also derived from the bedding, clothes, etc.

Anatomy.—The pediculus pubis (fig. 91) is much broader and flatter in proportion than the other pediculi. The female is about one and a half to two mm. long and three-quarters of that broad. The male is about half the size of the female, and the terminal segment of the abdomen is rounded, while in the female it is notched. The head is rounded, provided with five pointed antennæ and two small, prominent eyes behind them. It has a neck, by which it is attached to the sulcus of the heart-shaped body, the broad, flat thorax being merged into the abdomen, and carrying anteriorly a slender pair of legs, which are used for walking, and terminate in a straight claw; while the two posterior pairs of legs are stronger, and used for clinging and climbing, and are accordingly provided with strongly curved claws, and, with the tarsus, make three-quarters of a circle. The ova are ten or fifteen in number, hatch out in a week, and the young are sexually mature in two weeks.

Diagnosis.—The diagnosis can present no difficulty, if the possibility of their existence be borne in mind in every case of pruritus of the pubes and other regions liable to their attack. At the same time they require a close investigation, as they are very small objects.

Treatment.—Naphthol ointment, as recommended in scabies, should be rubbed in, or hyd. oleat. 5 per cent. ʒvj, æther sulph. ʒij, is a good application, and kills the nits; or Peruvian balsam and vaseline or lard, in equal parts; or they may be subjected to the

vapour of chloroform ; or the part may be freely dabbed with a lotion of hyd. perchlor. 1 in 250, and the nits destroyed with carbolic lotion 1 in 40. The classical treatment of two good rubbings of the ung. hydrargyri is effectual, but not free from the danger of exciting a dermatitis of its own. Calamine lotion should be applied freely after the animals and their ova are killed, in order to allay the irritation, which does not subside at once ; and the patient's mind should be tranquillised by explaining this, or he is apt to fancy himself uncured, and resort to violent and quack remedies. The various lotions for nits already described for pediculi capitis find a place here also. It is better not to cut the hair on the pubes, as the pressure of the clothes on the ends of the growing hair produces intolerable irritation until the hair has grown long enough to curl.

PULEX PENETRANS.

Synonyms.—Rhynchoprion penetrans ; Nigua ; Chigoe ; Jigger ; and many other local names.

This parasite is indigenous to tropical America, between 23° N. and 28° S., and in 1872 was imported into Africa, and spread widely over the Gaboon and Congo coast. It only survives for a short time (a few months) when imported into temperate climates. The dirty huts of negroes and Indians, piggeries, and cattle-sheds are its chief quarters. The animal is like a common flea, with a proboscis as long as its body. The impregnated female alone bores into the skin, most commonly under or beside the toe-nails, or the less common positions are, parts of the foot other than the toes, the scrotum, knee, upper extremity, and back, burying the head only, and there she remains until the maturation and extrusion of the eggs, which distend the abdomen into a sac as large as a small pea. Her operations excite painful inflammation, swelling, suppuration, extensive ulceration, and even gangrene.

The treatment consists in picking out the chigoe with a blunt needle, taking care not to rupture the abdomen, and anointing the foot with essential oils, turpentine or carbolised oil, to prevent further attacks. Abscess cavities should be washed out with disinfecting solutions—corrosive sublimate one in a thousand, or carbolic acid one in forty.

Pulex Irritans. The common flea is only too well known. It produces a red spot, seldom so wheal-like or large as that of the bug, with a central puncture, which, when recent, will distinguish it from erythematous eruptions due to internal causes, but in a short time, especially in cachectic subjects, it becomes petechial, and, if associated with fever from some other cause, may give some trouble in diagnosis from typhus, measles, etc. The general dirtiness of the patient, and the more recent bites, will give a clue to the cause.

The human flea may be transferred to the dog, and that of the dog to man, but it does not live long upon him. Berg records a case of a filthy old woman with psoriasis, in which the larvæ of the common flea were flourishing amongst the scales and crusts of her disease.

Cimex Lectularius, Acanthia lectularia, or common bed bug. This animal, with its repulsive smell, is too well known to need description. It comes only on the human body to feed, puncturing the skin, injecting an irritating fluid to increase the hyperæmia, and sucking its victim's blood. It produces a wheal, a raised red spot, with a whitish centre, and a central puncture, and on the subsidence of the swelling there remains a purpuric spot, which follows the usual course of petechial spots. A formidable species, the Conorhinus sanguisuga, or "big bed bug," excites severe inflammation, and is said by Riley of St. Louis to be found in beds in Illinois and Ohio.

Treatment.—Toilet vinegar, carbolic acid lotions, weak liquor ammoniæ, corrosive sublimate one in five hundred, or Goulard water sponged on freely, or the lotions recommended for urticaria, give most relief.

Culex Pipiens and other Gnats and Mosquitoes of various species, all over the world, attack man and produce a wheal, and in hot climates they are a real pest, and great precautions have to be taken to prevent their access at night. Species of tabanidæ and simulium also excite wheals in different localities. Weak liquor ammoniæ or sal-volatile, and the other remedies mentioned under bug-bites, give relief to the intolerable itching. Rubbing the part with soap, and allowing a stream of cold water to run on it, is said to give immediate relief. Carbolic oil rubbed on is another good remedy. The tsetse fly, so fatal to beasts of burden in Central Africa, produces wheals only in man.

Ixodes or Wood Ticks (Nat. Ord. Acarina). Several species are temporarily parasitic on man. Ixodes ricinus is the European and temperate zone species. It bores into the skin with its proboscis, sucks the blood until it is gorged, swells to the size of a large pea, falls off until it has digested its meal, then ascends again the pine or other tree, until a fresh victim passes that way, when it drops upon him and begins again. It produces a small wheal, and if caught in the act should not be removed forcibly, as it will then leave its proboscis in the wound, and give great pain; it should either be allowed to finish its meal in peace, and drop off spontaneously, or an essential oil or turpentine may be painted on, which makes it withdraw its proboscis and kills it.

Œstrus, Gadbreeze or Bot-Fly.* Cases of the presence of the larvæ of several species† of this insect in the skin have been reported from time to time by various writers, of whom Walter Smith, McCalman, and Walker‡ of Shetland may be specially mentioned. In the latter place, it is said to be common, and always in women. It is also often met with in Central and South America. The ova or larvæ are deposited under the skin by means of the stinging apparatus, and set up either furuncular inflammation with a central aperture, through which the larvæ may be pressed, together with a sanious fluid, or they burrow under the skin, forming irregular serpiginous lines or wheals, which Walker compares to that produced by an inflamed lymphatic, but it is of a purplish colour; at the end of this line suppuration occurs before the larva escapes. Carbolic acid should be injected into the cavity after evacuating the larva.

Larva Migrans. Dr. Robert Lee§ has recorded two cases of a tortuous red line, which in one case travelled up the leg and on to the abdomen, and thence in various directions over the trunk, the

* *Literature.*—Smith reports an interesting case of dipterous larvæ in the skin, in *Report of Inter. Med. Cong. Lond.*, 1881, with partial bibliography and the substance of McCalman's case.

† Matas, in reporting a case from Honduras, says there are three species which attack man—the Hypoderma bovis, a species of Trypoderma or Cuterebra, and Dermatobia noxialis.

‡ *Brit. Med. Jour.*, February 12th, 1870.

§ *Clin. Soc. Trans.*, vol. viii., p. 44, with Report, and vol. xvii., p. 75.

older part fading as the line advanced. It was of a pale rose pink colour, $\frac{1}{6}$ to $\frac{1}{8}$ of an inch in diameter, and only just perceptibly raised. It travelled at the rate of one inch a day, but once four and a half inches, and was cured by excision of the recent end. Although no parasite was found, it was probably due to the travels of some insect larva, and I have therefore suggested the above name. Another case was sent to me by Mr. Travers Smith, a girl æt. two years. The mother's account was that, in November 1891, the child was found with half a slug in her hand, which looked as if it had been bitten off. The red line was first noticed about Christmas. The child was kept under observation. The course taken by the red line was most erratic, all kinds of curves and gyrations were made, and at others it would go in a nearly straight direction, once as much as seven inches in a day. It kept to the lower part of the trunk and thighs at first, but subsequently went up the back to the shoulder. The presumed larva was evidently beyond the red line, as the new part of the latter took several hours to develop. Three attempts were made to bring the process to an end, and capture the larva by excising a portion of skin at and beyond the red line, but the red line always formed beyond the incision by the next day. The case is still under observation. I am informed that in children in Arabia it is very common, and that the mothers burn the part with a hot wire. Subcutaneous injection of a drop or two of carbolic lotion one in sixty, or other not too poisonous solution, might be tried.

DRACUNCULUS MEDINENSIS.*

Synonyms.—Filaria medinensis; Guinea worm; Dracontiasis. This is the proper name for the disease, but it is rarely employed.

Definition.—A nematode worm of the genus dracunculus, which attains to maturity in the human body, and forms a subcutaneous abcess-like tumour, preliminary to its exit.

* *Literature.—Science and Practice of Medicine*, by Aitkin, seventh edition (Griffin : London). *Parasites*, by Cobbold (Churchill : 1879), contains the bibliography up to date. *Guinea Worm and Dracunculus*, by J. A. B. Horton (Churchill : 1868).

Symptoms.—The worm gives rise to no trouble until fully developed, when it can be felt under the skin like a coil of soft string. It frequently migrates to a considerable distance from the point where it was first observed before it reaches its point of exit, and may keep up its travels for months. When about to escape, in the slighter cases, a sharply circumscribed pea-sized vesicle is formed, and may increase to the size of a filbert; its formation is preceded and accompanied by a feeling of tension and itching. When rupture occurs, either from scratching, poulticing, or puncture, a serous fluid escapes, which is clear if the worm is entire, but turbid if the young have escaped, and the white head of the worm, which is always first, appears at the bottom of the cavity, and is gradually extruded, either at once or only after some delay. If not extruded at once, sometimes the wound closes, and another tumour forms in the neighbourhood, but in a properly managed case, the removal is effected in from three to ten days, and the wound soon heals. In more severe cases, violent inflammation may occur along the whole worm track, and there is then pain, redness, and swelling, followed by a copious purulent or ichorous discharge, hectic fever, and perhaps delirium.

This inflammation is liable to kill the worm, and lead to its breaking during extraction,—a very serious accident, which may result in crippling, gangrene, and even death, from exhaustion, or from tetanus, the abscess bursting into the abdominal cavity, etc. These serious consequences are generally considered to be due to the escape of the embryos into the tissues, where they were once found by Böttcher. In more fortunate cases, when the live worm is broken, it may be discharged at a later period by the formation of a fresh tumour. The point of exit is, in two-thirds of the cases, in the foot, especially in the heel; in about a fourth of the remainder, the exit is on the leg and thighs, and in exceptional cases, it has occurred in the scrotum, hands, trunk, neck, head, nose, and orbit; in short, the worm has been found almost everywhere except in the brain and eye. As a rule, there is only one worm, but sometimes two, and as many as fifty have been recorded (A. Farre), and Dr. Mircus of Lissa recorded a fatal case, where the whole body and skin were a network of guinea worms.

Etiology.—The worm enters the body, by the water containing the larvæ being swallowed, and not by the young worm penetrating the skin of the foot, or other part, while the victim was bathing,

as was formerly supposed, on grounds which appeared conclusive before the life-history was known.

The disease is endemic in Arabia Petræa, the borders of the Persian Gulf and Caspian Sea, Bokhara, where it is universal, the East Indies, especially Bombay, and the banks of the Ganges; in Upper Egypt, Nubia, Abyssinia, the coast of Guinea and the Gold Coast, the islands of Mauritius and Curaçoa, and occasionally in some other of the West Indian islands and in Brazil.

Pathology.—The female worm, to which this disease is due, has a uniformly cylindrical shape, one-tenth of an inch in diameter, and is usually from twenty-five to thirty inches long, though extremes of one foot and six feet have been recorded, the African being larger than the Indian worm. The tail is curved and pointed, the head slightly convex, with a central mouth surrounded by four equal papillæ. It is viviparous, enclosing an enormous number of embryos, and it reaches its destination in the following way. The embryos, which have escaped from man into water, penetrate the bodies of a minute crustacean of the genus cyclops, where they undergo full larval development in about six weeks. When the cyclops host is swallowed in the drinking water, or accidentally in bathing, the larvæ escape, undergo sexual development and impregnation in the human interior, and the female then sets out on her migrations through the tissues, the male, which has never been discovered, dying, and being cast out, it is supposed, in the fæces.

The impregnated female very soon makes her way into the muscles, and grows quickly to some size, pains in the muscles sometimes testifying to her presence; but it is nine to twelve months from the date of her entrance into the body before the worm appears at the surface, and Busk says it may even be eighteen months.

Diagnosis.—The diagnosis can only be made when the worm can be felt under the skin like a coil of string, and its nature will become more certain if it changes its position before it forms the tumour preliminary to its exit.

Prognosis.—This is favourable unless violent inflammation occurs before or after the opening of the abscess, the consequences being especially serious when the worm is broken during extraction.

Treatment.—From what has been said, the indication clearly is to remove the worm entire. This may be effected after the tumour is opened, when the head is protruded; as much as will come out

easily, should be wound round a stick or small cardboard roll, and given a turn or two carefully every day, until the worm is gradually extracted. The natives in India coax the worm out, so to speak, by placing the foot in a running stream, the current exercising gentle but continual traction. Forbes also recommends continuous irrigation after opening the vesicle, as it leads to the discharge of the young externally, and when they are all gone traction can be more safely effected, and may even occur spontaneously. Horton of the Gold Coast recommended large doses (ʒj or ʒij) of tincture of asafœtida three times a day to kill the worm and its progeny, and prevent inflammation, etc., before extraction. Tilbury Fox had a case which he treated by this method, and in a few days, the entire worm was discharged whole into the poultice. Even when it is not discharged, it gives no further trouble, and is gradually absorbed or encysted. When violent inflammation ensues, this must be treated like any other surgical inflammation, and even amputation has sometimes been necessary.

Craw-Craw. This is a disease of the west coast of Africa, occurring chiefly in negroes. According to O'Neill,* it is an eruption with papules, vesicles, and pustules, attended with violent itching, and looking like old scabies, but the eruption and itching decline if the patient goes to a cooler climate, and return in the hot, moist climate of the west coast.

If the top of a papule is shaved off, moistened with water, and placed under the microscope, a filarial organism, something like the filaria nocturna, may be found, but it has two distinctive black marks near the cephalic end, and is also shorter and broader (P. Manson).

According to Manson, the case reported by Silva Aranjo in Brazil as a case of craw-craw with chyluria and elephantiasis arabum, in which he found embryo filaria, and one dead mature one in the urine, but none in the skin, is really a case of filaria nocturna, which is also well known as a cause of lymph abscess, tropical elephantiasis arabum, and lymph scrotum.

Nielly of Brest in 1882 observed the case of a boy, æt. fourteen, who had never left France, with symptoms like craw-craw, and he found nematodes in the papules in all stages of development, some of them sexually mature females, very like the filaria

* *Lancet*, vol. i. (1875), p. 265, with illustration of the worm.

described by O'Neill. They had two peculiar markings at the cephalic end, a well-defined alimentary canal, but rudimentary genitals. At one time it was associated with a nematode embryo. Probably, writes Manson, the skin parasite was an advanced form of the embryo of the blood, and both were the offspring of a mature worm somewhere in the tissues, the rhabditis Nielly. Nielly thought it belonged to a species of leptodera of the family of the anguillulidæ, a view with which Geber agrees, both for this and O'Neill's case. The natives consider that craw-craw is contagious, and that it has an incubation period of three days; but if it is a filarial disease, as above described, it could not, says Manson, be contagious, and must have a much longer incubation.

Craw-craw and filaria perstans, having a similar geographical distribution, may be etiologically related.

Probably the term craw-craw is used rather loosely in Africa. C. S. Grant, who practised in West Africa, says that it is a kind of scabies, and is curable by itch treatment. It comes mostly, but not exclusively, on the hands and wrists, but also elsewhere, and begins as a group of papules, which become pustules, and are intensely itching. I had a patient, an officer from the west coast of Africa, who said he was told there that he had craw-craw, but what I saw was evidently eczema marginatum.

CYSTICERCUS CELLULOSÆ CUTIS.

Rokitansky first demonstrated the presence of the cysticercus of tænia solium in the subcutaneous tissue, and cases have been reported by Lewin,* Guttmann,† Schiff,‡ and others. Indeed, Küchenmeister and Zürn state that at least 5 per cent. of all cases of tænia solium affect the skin. Most of the cases have been observed in North Germany, where half-cooked pork is more frequently eaten than in other countries. These small hydatids are rarely single, and usually very numerous, but do not appear together. They occur chiefly on the back and sides of the trunk, less frequently on the extremities. They are really subcutaneous, and appear externally as oval or roundish pea-sized tumours, as a rule, but varying from a lentil to a walnut. The skin over them is normal, and when the animal is alive the tumour is elastic and

* *Viertelj. f. Derm. u. Syph.*, vol. iv., Heft iv.
† *Berlin. klin. Woch.*, No. 26, 1877.
‡ *Lancet*, vol. i. (1879), p. 753.

movable. After death they shrink, and become hard nodules, which are often calcified, but they take two or three years to become thus completely obsolete. They rarely give rise to pain or other inconvenience, unless they are unusually large, or exposed to pressure, or in the rare event of suppuration taking place. Their interest lies chiefly in their diagnosis. Pye-Smith * showed a man of about thirty to the Dermatological Society in April 1892, in whom there was a large number of pea- to marble-sized nodules imbedded in the subcutaneous tissue, chiefly of the upper part of the trunk, but also in the limbs, head, and neck, some of them being in lines. The skin over them was unaltered; they were quite firm to the touch, painless, and felt more like nodules than cysts. Their real nature was not suspected until one was excised from the forehead, when they were found to be cysts containing embryos with a single circle of alternately large and small hooklets. Perrin read a case at the Dermatological Congress at Vienna, probably due to auto-inoculation. These cysts may be mistaken for rheumatic nodules, gummata, lipomata, sarcomata, carcinomata, and sebaceous cysts. Careful consideration of all the circumstances and symptoms will sometimes lead to a suspicion of their nature, which will be confirmed by excision, or even puncture, of one of the tumours, when the hooklets will be discoverable in the escaping fluid.

Echinococcus hydatid has also been reported as having been found in the skin by Davaine. It forms a semi-translucent, fluctuating tumour, with the skin over it unchanged. The parasite dies in one or two years, and the diagnosis would probably not be made without an exploratory puncture, and discovery of the hooklets with the microscope.

Three cases of encapsuled rediæ, or **embryos of the distoma hepaticum**, have been collected by Küchenmeister. They were only diagnosed after removal.

Sharkey has found the **ova of Bilharzia hæmatobia** in some human skin sent to him from Cairo.

* "Case of Multiple Cysticercus of the Subcutaneous Tissues," *Brit Jour. Derm.*, November 1892, illustrated.

EPIDEMIC EXFOLIATIVE DERMATITIS.*

[Omitted from page 253.]

Synonym.—Epidemic eczema ; Epidemic skin disease.

In the autumn of 1891, chiefly in July and August, a remarkable epidemic eruption made its appearance in the Paddington (163 cases), the St. Marylebone (193), and the Lambeth (25) Poor Law Infirmaries. In the Hanwell Lunatic Asylum also, there were 38, in St. Mary's Hospital 4, and a few other isolated cases. A similar outbreak occurred in the Greenock Parochial Asylum in 1888.

The disease occurred in two main types,—a moist one, resembling eczema; and a dry one, indistinguishable from pityriasis rubra. Dr. Savill gave an elaborate account of the disease from the 163 cases under his care at the Paddington Infirmary; and, thanks to him and Dr. Lunn, I was able to examine a large number of cases both at Paddington and St. Marylebone. Although in two-thirds of Dr. Savill's cases there was more or less discharge, there was always free exfoliation of the epidermis, and many were typical examples of pityriasis rubra, as far as appearances are concerned, and there was a heavy mortality among the old people. A few of the attendants on the sick, a few children and young people, were attacked ; but the great majority were middle-aged or old persons of both sexes, in the infirmaries for other diseases. As a rule, the eruption was not preceded by any noticeable signs or symptoms, and there was no fever, except towards the end, in severe and fatal cases. Among antecedent or concomitant symptoms, anorexia was common ; some had vomiting, some diarrhœa, some both, and a few had sore throat. In nearly all whom I personally examined, except the very aged, the occipital glands and those down the neck were enlarged and sometimes tender, and occasionally the sub-maxillary glands were also enlarged. This enlargement could not be accounted for by the eruption in the head, as it occurred in some cases where the head was almost free. The parts most frequently first attacked were some portion of the upper limb, the face, and scalp, 57 per cent. commencing in one or other of those parts, the exposed positions in fact; in only 17 per cent. were the lower limbs first

* *Literature.* — A well-illustrated monograph by Savill, 1892; and in *Brit. Jour. Derm.*, vol. iv., 1892, in the February, March, and April numbers. There were also many communications on the subject in the *Lancet* and *Brit. Med. Jour.*, in vol. ii., 1891, and vol. i., 1892.

attacked, and the rest began in various positions. The first symptom was a sensation of itching, then numerous acuminate red papules appeared, irregularly grouped, and seated at the follicles. These either remained unchanged for a time, or some of them coalesced into red patches, and the eruption spread over the body, sometimes slowly, sometimes rapidly, until the whole surface was affected without any interval with a deep red infiltration, covered with abundant flaky scales; and thus, but for the history, a typical pityriasis rubra was presented. About half were thus universal. In many, vesicles formed on the papules on the second or third day, and discharged, producing a moist eczematous surface. A less frequent mode of commencement was the formation of round, well-defined, erythematous patches. In six of Savill's cases, small flat papules appeared, which enlarged peripherally, and formed a circular red ring, enclosing a depressed area, covered with minute vesicles. While the majority were symmetrical from the first, in some a local origin could be traced, and then after some days there was generalisation. A few of these of local origin were aborted by painting with collodion or iodine.

The orbits were often much affected, and then conjunctivitis was usually present. The disease in the universal cases, usually ran its course in from six to eight weeks, but many had relapses, and a few had actual second attacks. In those who recovered, there was very deep pigmentation of the skin, and all the nails and hair were shed in the severe cases; in one case, even where no rash was observed on the scalp. In the fatal cases—13 per cent. in the Paddington, and 5 per cent. in Marylebone Infirmary—death was usually by exhaustion, preceded by subsultus tendinum, shallow respiration, and coma. Some had complications, such as pneumonia, gangrene of the feet, etc.; albuminuria was present when there was a large area of skin involved. No cause, after the most diligent search, could be assigned for the outbreak; but from the scales and fluid from unruptured vesicles, both Savill and Risien Russell isolated an organism very like staphylococcus pyogenes albus, but, unlike the latter, they were diplococci in rod-like segments, did not liquefy gelatine, and had not the specific effect on animals that staphylococcus albus has. Risien Russell could find no such organism in the blood of an ordinary pityriasis rubra case. Treatment had little effect in shortening the course of the disease.

APPENDIX.

AN ANALYSIS OF TWELVE THOUSAND CASES OF DISEASES OF THE SKIN.

STATISTICS of diseases of the skin require a good deal of qualification before they can be accepted as tests of the frequency of any particular disease. Thus the cases which are rebellious to treatment, such as tinea tonsurans, naturally gravitate in undue numbers to a special department. Cases which are relievable, but seldom curable, like both forms of lupus and psoriasis, and to a less extent tertiary syphilis, come back year after year, and are counted as fresh cases. On the other hand, cases which are easily recognised or easily curable, such as herpes zoster, molluscum contagiosum, etc., have a much smaller place than their real frequency would entitle them to. Again, very rare diseases, and even the less common forms of disease, such as lichen planus, with which many practitioners are unfamiliar, naturally find their way in undue proportion into dermatological statistics; while many new growths, such as fibroma, epithelioma, rodent ulcer, and vascular nævus, are quite as or even more likely to go to the general surgeon, who also retains many cases of lupus and syphilis. Nevertheless, while the numbers must be taken, with these and other qualifications, as only roughly approximate, they have, if in sufficiently large numbers, a certain value, especially when compared with those of other countries and other workers. The round number ten thousand has been chosen because, while it is large enough to avoid the errors of a small series, it allows the ratio per thousand to be readily computed. The cases are, however, consecutive; but those patients who were admitted into the hospital directly—*i.e.*, without passing through the out-patient department—are not included, so that many cases of rare diseases, such as xeroderma pigmentosum, scleroderma, leprosy, etc., have passed under my cognisance, but are not mentioned here, the tables being simply an out-patient record. But if tables of hospital practice must be taken with qualifications, those of private practice are still more open to fallacy, and only in quite a moderate number of diseases can a comparison between their frequency in rich and poor be made. Only the first two thousand patients which have come under my care have been given as a mere sample of the class of cases which seek advice from a consultant with a special reputation for diseases of the skin. In one way private statistics are more accurate, as the same patient would not be counted twice because he came in a different year. Readily curable and readily diagnosable cases are

conspicuous by their absence or very small numbers. Few cases come to me which have not undergone previous treatment by their family practitioner, his extremity being my opportunity. Partly for this reason, and partly that a large proportion of persons, unless they are very wealthy, are unwilling to pay high fees for young children, unless the disease is very obstinate or disfiguring, the proportion of children in private consulting practice is very much less than would be anticipated, especially when compared with hospital practice. Allowing for all these modifying circumstances, of course there are differences in the relative frequency of skin diseases in rich and poor. What may be termed dirt diseases are, naturally, nearly absent, and even when present, due to other causes. Thus pediculosis as it affects the head and body, which constitutes ten per thousand in hospital practice, only amounts to one in one thousand in private. As regards pediculi pubis, owing to its being acquired chiefly in impure intercourse, it is even more common among the well-to-do; but this disease does not figure largely in my practice. Scabies, on the other hand, stands rather high in the list—2 per cent., as compared to 4 per cent. in public work; but this is because scabies in clean people seldom develops to any great extent, and it is chiefly as a result of errors of diagnosis that it comes under my cognisance. Tinea tonsurans also stands high—viz., as 5 per cent. to 10 per cent. This, however, underestimates the frequency of it, as for the most part only the inveterate cases come under my notice in private. On the other hand, few cases of tinea circinata are in the list, as the family doctor cures it as easily as I should do. Impetigo contagiosa is a rare disease among the well-to-do; 1 per cent., as compared to 10 per cent. as the conditions for acquirement and propagation, less often obtain. In lupus vulgaris, the difference in the frequency is much greater than it appears—viz., ten to thirteen per thousand. The reason is that, on account of its obstinacy, nearly all cases of lupus vulgaris among the "classes" have consultant advice, if they can afford it. Lupus vulgaris is really a rare disease among the wealthy; the majority of sufferers, even in private practice, belong to the less prosperous members of the community. Lupus erythematosus is quite on another footing; for whilst it is only half as common as lupus vulgaris at the hospital, it is more common than it, in private—another argument against the two diseases being etiologically identical. The difference in frequency between eczema and psoriasis in private and hospital practice is not great; but lichen planus is twice as frequent in private—viz., as twenty-one to ten—because not only does it yield to treatment slowly, but it is often not recognised by the practitioner; possibly also the neurotic element in its etiology finds freer scope among the *clientèle* of the consulting room.

Diseases involving a loss of hair figure high in private, as this class of people are more sensitive on the subject. Its rebelliousness to treatment is probably another reason of the frequency of alopecia areata, as well as its conspicuous disfigurement; but believers in a universal neurotic theory for all cases would probably explain it as due to the greater sensitiveness of the nervous system of the wealthier classes. Rodent ulcer also has a high place—6½ per thousand. As the dermatologist sees it, it is generally in an early stage, the more advanced cases usually resorting to the general surgeon. As might be expected, acne vulgaris and rosacea

have a much higher ratio than in hospital patients, who as a class would not trouble about the slighter forms of those diseases. Many other comparisons might be made, but enough has been said to show that many other considerations come in besides the mere figures in comparing the two tables, and in estimating the relative frequency of diseases of the skin.

ANALYSIS OF 10,000 CASES OF DISEASES OF THE SKIN IN HOSPITAL OUT-PATIENT PRACTICE.

Class I. Hyperæmiæ:

Erythema	56

Class II. Exudationes:

Erythema exudativum, including 16 erythema iris	114
Urticaria	440
Prurigo	21
Eczema, all forms	2630
Dermatitis repens	5
Impetigo contagiosa	961
Furunculus	32
Carbunculus	3
Pompholyx	11
Herpes zoster	61
,, facialis	52
Pemphigus	33
Hydroa herpetiforme	10
,, vacciniforme	1
Psoriasis	718
Pityriasis rubra	14
,, rosea	40
Lichen planus	98
,, scrofulosus	14
,, pilaris	7
,, circinatus (seborrhœic dermatitis)	46
Conglomerative pustular perifolliculitis	1
Vaccination eruptions	8
Dermatitis, unclassified	24
,, artificialis	4
Drug eruptions	8

Class III. Hæmorrhagiæ:

Purpura	11

Class IV. Hypertrophiæ:

Ichthyosis and xeroderma	54
Papilloma	7
Tylosis palmæ	5
Scleroderma	2
,, circumscribed	6
Elephantiasis	6

Class V. Atrophies and pigment anomalies:

Chloasma	2
Nævus pigmentosus	2
Leucoderma	15

Class VI. Neoplasmata:

(*a*) **Degenerative:**

Molluscum contagiosum	20
Xanthoma	3

(*b*) **Infiltrating:**

Lupus vulgaris	127
,, erythematosus	63
Scrofuloderma	15
Syphilis, secondary, ,, tertiary	540
,, congenital	73
Lepra	

(*c*) **Benign:**

Keloid	2
Fibroma	1
Nævus vascularis	3
Telangiectasis	3

(*d*) **Malignant:**

Paget's disease	1
Rodent ulcer	14

Class VII. Neuroses:

Pruritus	90

Class VIII. Morbi appendicium:

(*a*) **Sweat glands:**

Hyperidrosis	13
Chromidrosis	2
Miliaria	30

(*b*) **Sebaceous glands:**

Seborrhœa	77
Milium (grouped)	1
Comedones (grouped)	7
Acne vulgaris	245
,, rosacea	199
,, varioliformis	15
Adenoma sebaceum	1

(*c*) **Hair follicles:**

Canities	1
Alopecia	5
,, areata	253
Sycosis	76
Folliculitis	5

(*d*) **Nails:**

Trophic nail affections	21

Class IX. Parasiti:

(*a*) **Vegetable:**

Tinea tonsurans, including 26 kerion	1031
Tinea circinata	272
,, barbæ (severe)	6
,, versicolor	29

(*b*) **Animal:**

Scabies	796
Pediculi capitis	192
,, corporis	197
,, pubis	4

Class X. Exanthemata:

Varicella	30
Other exanthemata	10
	10,000

ANALYSIS OF 2,000 CASES OF DISEASES OF THE SKIN IN PRIVATE PRACTICE.

Class I. Hyperæmiæ:

Erythema, congestivum	11

Class II. Exudationes:

Erythema exudativum	30
Urticaria	85
Eczema, all forms	445
Dermatitis repens	4
Impetigo contagiosa	17
Pompholyx (dysidrosis)	3
Herpes zoster	7
,, facialis	6
,, genitalium	5
Pemphigus	5
Hydroa herpetiforme	7
Dermatitis æstivalis	2
Psoriasis	160
Pityriasis rubra	11
,, rosea	12
Lichen planus	42
,, circinatus (seb. corp.)	11
,, scrofulosus	1
Furunculi	11
Carbunculus	1
Septic dermatitis	1
Medicinal eruptions	11

Class III. Hæmorrhagiæ:

Purpura	1

Class IV. Hypertrophiæ:

Ichthyosis and xeroderma	20
,, hystrix	2
Verruca	15
Cornu	2
Tylosis palmæ	1
Circumscribed scleroderma	2

Class V. Atrophies and pigment anomalies:

Lentigines	5
Leuco- and melanoderma	4
Orange stains	3
Chloasma uterinum	4
Gunpowder marks	1
Moles	6

Class VI. Neoplasmata:

(*a*) **Degenerative:**

Xanthoma diabeticorum	1
Molluscum contagiosum	4

(*b*) **Infiltrating:**

Lupus vulgaris	20
,, erythematosus	24
Scrofuloderma	3
Syphilis, secondary	30
,, tertiary	42
,, congenital	4
Lepra	6

(*c*) **Benign:**

Fibroma simplex	3
Keloid	2
Lipoma	1
Papilloma	3
Nævus vascularis	8
Telangiectasis	14
Lymphangiectodes	1

(*d*) **Malignant:**

Rodent ulcer	13
Epithelioma	1

Class VII. Neuroses:

Pruritus, general	25
,, ani	16
,, vulvæ	8
Syphilophobia	1

Class VIII. Morbi appendicium:

(*a*) **Sweat glands:**

Miliaria	2
Sudamina	2
Hydradenitis	2
Hyperidrosis	2
Osmidrosis	2
Red sweat	2

(*b*) **Sebaceous glands:**

Seborrhœa, face	12
,, scalp, with alopecia	84
,, ,, without ,,	
Milium	4
Acne vulgaris	143
,, rosacea and hyperæmia of face	94
,, varioliformis	3
,, keratosa	1
Adenoma sebaceum	1

(*c*) **Hair follicles:**

Hirsuties	58
Canities	4
Trichorrhexis nodosa	5
Ringed hair	1
Splitting of hair	1
Alopecia	21
,, areata	82
Sycosis	11
General folliculitis	3

(*d*) **Nails:**

Trophic defects	11

Class IX. Parasiti:

(*a*) **Vegetable:**

Tinea tonsurans	114
,, circinata	13
,, cruris et axill.	7
,, barbæ	10
,, versicolor	12
Erythrasma	3

(*b*) **Animal:**

Scabies	38
Pediculi pubis	3
,, corporis	2

Class X. Exanthemata:

Exanthemata	8
Unclassified	16
	2,000

NATURAL MINERAL WATERS AND SPAS.

BOTTLED MINERAL WATERS.

The dermatologist makes use of the purgative, alkaline, and ferruginous natural mineral waters in the same way, and for the same purposes, as the general physician. The bromo-iodine and arsenical waters are of more special application.

PURGATIVE WATERS.

The directly purgative waters owe their action chiefly to sulphates of soda and magnesia in varying proportions. The principal are **Püllna, Friedrichshall, Hunyadi-Janos, Æsculap,** and **Victoria Ofener.** Of these I use Friedrichshall for a mild and Hunyadi-Janos for a stronger aperient, but some prefer Püllna to Friedrichshall, as the latter contains a large quantity of chloride of sodium, which they think is injurious in skin diseases; but this is not a sound objection, in my opinion. When the sulphates of magnesia and soda are in nearly equal proportions, the taste is much less objectionable than when one or other preponderates. For this reason I prefer Hunyadi-Janos, and the less known Hunyadi-Taszlo, which is a trifle stronger, to the more powerful Æsculap and Victoria Ofener; the last being the strongest purgative water known, but it contains a large preponderance of sulphate of magnesia, and is proportionately nasty. The "*Franz Josef*" spring is also a very strong aperient, and contains equal parts of the sulphates of soda and magnesia, 240 in 10,000, but I have not tried it yet. The dose of nearly all these is a wineglassful and upwards, freely diluted with tepid water, and taken in the morning before breakfast. They are especially useful in fæcal accumulation, which always aggravates, even when it does not produce, inflammatory diseases, such as eczema, acne, etc.

ALKALINE WATERS.

These are very numerous. Those of **Vals, Vichy, Ems,** and **Karlsbad** may be specially mentioned. Vals and Vichy are simply alkaline, and owe their properties chiefly to the bicarbonate of soda they contain. Those of Vals are the strongest, especially the Magdeleine, Précieuse, and Désirée springs. Those of Vichy are more generally employed, and though there are several springs they are practically of the same composition and value. They are useful to many dyspeptics with strongly acid urine, and in any skin disease, such as eczema or psoriasis, in which that condition is present; they should not, however, be continued too long, or they may aggravate instead of alleviating. A tumberful of either Vals or Vichy may be taken twice a day.

Karlsbad Sprudel salt is laxative as well as alkaline; its chief constituents are sulphate and bicarbonate of soda, with a moderate quantity of chloride of sodium. It is a great favourite of mine in gouty states, and in inactivity of the liver. A heaped teaspoonful of the dried salt dissolved

in at least two-thirds of a tumberful of warm water, and taken before breakfast, generally gives one or two free evacuations, and there is no further trouble. It may be taken two or three times a week.

FERRUGINOUS WATERS.

The waters from Spa, Pyrmont, and Schwalbach are those chiefly employed.

Spa.—The Pouhon and Pouhon du Prince de Condé are the chief iron springs. That from the Prince de Condé is the only one imported. The iron is in the form of bicarbonate, along with sodic, magnesic, and calcic bicarbonates. Owing, however, to the lime being in small quantity, it has the great advantage of retaining its iron for a long period after being bottled; while most ferruginous waters contain a great deal of lime, which leads to the speedy deposition of the iron from solution.

Schwalbach.—Water from the Stahlbrunnen and Weinbrunnen is imported into England. The Stahlbrunnen is stronger and more stable, from its containing less lime.

Pyrmont.—The Trinkbrunnen and Neubrunnen are a little stronger as regards iron than the respective springs above mentioned of Schwalbach, but they contain enormous quantities of lime.

On the whole, therefore, the Spa waters are the best; from one to four tumblers or more a day may be given in anæmic and chlorotic states, or whenever iron is indicated. They are especially suited for patients with weak digestions, who do not tolerate iron in the cruder forms, and for whom expense is not a great object. A fair imitation may be made by adding ten minims of the liquor ferri perchloridi B.P. to half a pint of seltzer water.

Flitwick.—This is a remarkable spring in Bedfordshire, containing no less than 170·8 grains of persulphate of iron to the gallon. It keeps well in bottles, but whether, as asserted, the iron is in a readily assimilable form requires further experience; it is well worth trying.

ARSENICAL WATERS.

The chief are those of Levico, La Bourboule, and Royat (Saint Victor). La Bourboule is a sodio-chloruretted and bicarbonated arsenical water, containing twenty-eight milligrammes of sodic arseniate to the litre, or nearly two grains to the gallon. The other salts both of this and Royat are very similar to those of the blood. A large tumberful is the average dose.

Royat.—The Saint Victor spring is the strongest; it contains only one-sixth of the quantity of arsenic contained in the waters of La Bourboule, but has more iron.

Levico is said to be the strongest arsenical water known, containing ·086879 arsenious acid in 10,000 parts, or about one-twelfth of a grain per pint; it also has a considerable quantity of iron in the form of persulphate. The usual dose is a tablespoonful. These waters are used chiefly in anæmia and psoriasis, and, like the ferruginous waters, are adapted for weak digestions and long purses.

BROMO-IODINE WATERS.

These are suitable for strumous and syphilitic subjects. The chief are those of Kreuznach, Purton, and Woodhall. The last is the strongest known, and contains nearly five grains of bromine and two-thirds of a grain of iodine to the gallon.

THE SPAS.

Far more efficacious than swallowing the imported waters is a visit to the spas themselves. It must, however, be borne in mind, that there are many other elements beside the composition of the waters which make for success in the restoration of the patient. Among these are the climatic conditions, and the consequent change of air and scene, the regimen and regular hours, as well as the withdrawal from many of the temptations of society life. At some spas, the topical use of the baths plays an important part; and last, not least, is the influence of hope and faith engendered, in the carrying out of a new treatment in which there appears to be a little mystery, and in which the very expense and trouble stimulate the patient to do all that he can to get well, instead of carrying out the treatment in the half-hearted way, in which patients at home are too apt to subordinate the means of cure, to their engagements and convenience. Although, therefore, to such self-indulgent patients, a suitable spa may be the best means of cure, it must not be supposed that they are necessary to success, provided that a patient will give himself up to treatment at home, as completely as may be necessary for the kind of case.

A few of the principal spas will be specially noticed in alphabetical order.

Aix-la-Chapelle, Germany, is in a bowl-shaped valley in the Lower Rhine, near the Belgium and Dutch frontiers. The climate is mild, and the season is from May to October. There are four chief springs: the Kaiserquelle, the Quirinusquelle, the Rosenquelle, and the Corneliusquelle. They are hot, sulphuretted waters, with a fair amount of chloride of sodium. The Kaiserquelle, 131° F., is the hottest; the Corneliusquelle, 113·60°, the least so; in other respects they are practically the same. They are chiefly employed for psoriasis and tertiary syphilis, for the latter in conjunction with mercurial inunctions. The system employed has obtained great celebrity and success, and is thus described by Berkeley Hill in his work on Syphilis:—

"The patient is restricted to a tolerably precise regimen, which excludes bodily fatigue, excess of all kinds, and enforces regular hours of rest and gentle exercise. The diet is limited; many articles, such as fruit, likely to cause relaxation of the bowels, are forbidden, while milk is largely prescribed. The daily course consists of a bath in the hot sulphur water, and during the sweating thus induced, a drachm of mercurial ointment is rubbed by an attendant into the skin of the patient. In this condition he remains for one or two hours, drinking a pint or more of the sulphur water during his sweat. He then rises, walks out, dines, and then walks again if weather permit. In the evening, he goes

early to bed, and thus prepares himself for a repetition of the treatment next day. Great care is taken to prevent salivation, both by watching the effect of the treatment and by insisting upon the use, several times daily, of an alum or other astringent mouth-wash. Tonics are also administered to weakly persons, and the treatment is modified in its strictness to suit their condition. The course occupies usually six or seven weeks, comprising forty to fifty rubbings. In this time, all symptoms have usually disappeared, at least for a time, and the patient is dismissed by his physician, with an injunction to return for another course after an interval of two months."

Aix-les-Bains, France, on Lake Bourget, in a pleasant valley. The climate is good, but hot in the season (July and August), and May, June, and September are preferable. The waters are from two chief springs, the Eau de Soufre and the Eaux d'Alum, which are practically identical, and, like those of Aix-la-Chapelle, hot and sulphurous. Their temperature is 112° to 116° F. There are three springs at Marlioz, about a mile distant from Aix-les-Bains, which are more strongly sulphurous, but their temperature is only 57° F. The neighbouring springs of Challes are of similar characters. Aix-les-Bains is chiefly resorted to in chronic gouty states, and is useful in gout, eczema, or psoriasis.

There are several sulphur springs in the Pyrenees, of which Eaux Bonnes, Eaux Chaudes, and Barèges may be specially mentioned. The first one lies 2,500 feet above the sea, and the stability of the sulphurous ingredients are said to be a distinguishing feature; it is powerfully diuretic, and is taken more for chronic lung than skin affections.

Ems, Germany.—The waters are alkaline, chiefly from bicarbonate of soda, and also contain some common salt. The chief springs are the Kränchen and Kesselbrunnen, and they are practically identical in composition, but the temperature is 115° F. in the Kesselbrunnen and only 85° at the Kränchen. The first is used mostly for baths, the other for drinking. The waters are especially useful in chronic bronchial and gastric catarrh, and are very beneficial in some cases of chronic eczema. The season is from May to September, July and August being the principal months. The air is bracing and pure, but in summer it is very hot.

Karlsbad, Austria, is a very celebrated spa, picturesquely situated 1,000 feet above the sea-level. The principal springs are the Sprudel, 165° F., the Mühlbrunnen, 126° F., and the Schlossbrunnen, 122° F. They contain sulphate and bicarbonate of soda, and a moderate quantity of chloride of sodium. They are especially useful in gouty conditions with constipation, and are much resorted to for obesity, for sluggish conditions of the liver, gall stones, and diabetes. The season is from April to October, but it is very hot in the summer months, and many, therefore, prefer Marienbad, in which the climate is more bracing, as it lies higher, but the waters are cold, and nearly twice as strong as those of Karlsbad.

Kreuznach, in the valley of the Nahe, in Germany, has a warm, dry climate, and is noted for its bromo-iodated waters, which are the strongest, except Hall, in Austria, but not to be compared to those of Woodhall. The principal spring for drinking is the Elisenquelle. The temperature is 54·5°. The principal constituents are chlorides of sodium, calcium, and

magnesium, and bromide and iodide of magnesium, but these last are in very small quantity. The diseases for which the Kreuznach waters are most useful are tertiary syphilides and strumous diseases.

La Bourboule, Puy-de-Dôme, near Royat, France, is situated at a height of 2,600 feet above the sea-level. It is noted for being one of the strongest arsenical waters known. The composition of the waters and their uses have been described under "Bottled Waters." The two chief springs are the Choussy and the Pevière. The season is during July and August. It is especially useful in psoriasis.

Levico, in the South Tyrol, near Trient, 4,880 feet above the sea-level, is not only stronger in arsenic than La Bourboule, but also contains pools with some persulphate of iron. There are two springs: the milder contains 8 grains of proto- and persulphate of iron and $\frac{1}{120}$ of a grain of arsenic to the pint, while the strong contains 34 grains of iron salts and $\frac{1}{1}$ of a grain of arsenic per pint.

Louèche or **Leuk**, in the canton of Valais, in Switzerland, is 4,500 feet above the level of the sea. The quantity of salines in it is small, and it is chiefly useful as a thermal bath, the principal spring, St. Laurent, being 144° F. It is of value especially in a disease like psoriasis, in which prolonged soaking is beneficial, while its high altitude gives it claims as a sanitorium.

Marienbad, Bohemia, is about twenty-five miles from Karlsbad, and lies 900 feet higher, being at an altitude of 1,900 feet; its climate, therefore, is cooler. The waters have the same characters as those of Karlsbad, but are much stronger both in sulphate and bicarbonate and chloride of soda, and are therefore more distinctly purgative. The chief springs are the Kreuzbrunnen and the Ferdinandsbrunnen, the last being the stronger. It is recommended for the same class of cases as Karlsbad, when a more decided aperient action and a more bracing climate are required. Eruptions of gouty origin are especially suitable.

Plombières, in the Vosges, is another lofty sanitorium, being 1,310 feet above the level of the sea, and has a proportionately bracing climate. Its waters resemble those of Bath. They contain only a small quantity of salts, but the temperature ranges from 66° to 143° F., the hottest spring in Bath being 117°. There is, however, an arrangement for "continuous baths," and it is, therefore, especially suitable for pemphigus and chronic psoriasis. One of its springs contains a minute quantity of arseniate of lime.

Royat, in the Puy-de-Dôme, is at an altitude of 1,400 feet, and its salts so nearly approach those of the blood that Gubler calls them "mineral lymph." The principal springs are the César, Saint Mart, and Saint Victor. The first is little more than a pleasant table water, and its temperature is 84°. All have some arseniate of soda; that of Saint Victor is the strongest, both in arsenic and iron, besides containing a small quantity of lithia chloride. They are, therefore, proportionately useful in anæmic states, and in gouty and rheumatic eczema and psoriasis. The season is from June to September.

Schinznach, Canton Aargau, Switzerland, are also sulphurous, and are much frequented, especially by French people; while Mehadia or the waters of Hercules and Pystjan, both in Hungary, have a high reputation,

largely earned by the vigorous thermal treatment employed, the temperature of the springs at both places being very high.

Schwalbach, in Nassau, is very much like Spa, both in altitude and in its waters, with rather more iron, the Stahlbrunnen containing $5\frac{1}{8}$ as against 3 of the Pouhon.

Spa, in Belgium, contains some of the best chalybeate springs, the Pouhon being the strongest, containing ·375 grains of carbonate of iron in sixteen ounces, or $3\frac{3}{4}$ grains to the gallon. It has an altitude of 1,030 feet, and is beautifully situated in a valley surrounded by pine-clad forests.

Vals, in the Ardèche, has an altitude of 2,475 feet. The chief constituent of the springs is bicarbonate of soda, the Magdeleine containing no less than 509 grains to the gallon, the two other principal springs, Précieuse and Désirée, containing 100 grains less, while the strongest spring in Vichy (Célestins) contains 357 grains to the gallon.

Vichy, in the Allier, at the foot of the Auvergne Mountains, is one of the most celebrated alkaline spas. The springs resemble each other in the large quantity of bicarbonate of soda they contain, and are largely resorted to in rheumatic and gouty states. The Grand Grille and the Célestins are the best known, containing more bicarbonate of soda and potash than the others. Gouty eczema is especially likely to be benefited by them.

The most celebrated English spas are :—

Bath, altitude 100 feet, celebrated for its hot springs, the hottest being 117° F. The mineralisation is rather scanty, but the baths are useful in psoriasis and rheumatism.

Buxton is in a valley surrounded by hills, at an altitude of 1,000 feet above the sea-level; its climate, therefore, is more bracing than that of Bath. On the other hand, the temperature of the waters is only 82°, though they are artificially raised to 95°. The waters are, like those of Bath, only slightly mineralised.

Flitwick.—Has a strong persulphate of iron spring; it has no accommodation for visitors as yet. (*Vide* "Bottled Waters.")

Harrogate does not lie quite as high as Buxton, and is celebrated for the number and variety of its springs, of which there are nearly one hundred. Its sulphur springs are the most celebrated, but it also contains chalybeate and saline spas. It is useful in some gouty eczemas, but, like all sulphur springs, must be used with caution and under expert supervision.

Purton, in Wilts, is a bromo-iodine spring, and useful for strumous subjects, but much weaker than the

Woodhall Spa, in Lincolnshire, which is the strongest bromo-iodine spring known, containing $5\frac{1}{2}$ grains of iodine, some of which is free, and 82 of bromine, to 10 gallons. It contains also a large quantity of chlorides. It is especially useful for strumous, syphilitic, and rheumatic subjects, and is superior to the more widely known Kreuznach for such affections.

Strathpeffer, in Ross-shire, has lately come into note as a sulphur spring, though it also contains a valuable chalybeate spring, containing about $\frac{1}{3}$ of a grain of carbonate of iron in the pint, with a large quantity of carbonic acid. The sulphur springs are some of the strongest known, containing more sulphuretted hydrogen than any of the Harrogate springs, and more uncombined sulphur than either Harrogate or Aix-la Chapelle,

but the old sulphur spring of Harrogate contains nearly four times as much alkaline sulphide. The climate is mild, and the scenery beautiful. The waters are useful for the same class of cases as those of Harrogate.

Other mineral springs of Great Britain are:—

1. Sulphurous: **Moffat** and **Cheltenham**.
2. Saline: **Cheltenham, Scarborough,** and **Leamington.**
3. Chalybeate: **Tunbridge, Cheltenham,** and **Brighton.**

FORMULÆ.

BATHS.

Simple and medicated baths are largely used in the treatment of skin diseases.

1. **Simple Vapour and Hot-air (Turkish) Baths** find but little employment in skin diseases, and would generally be injurious, but simple water baths are often used, both for their cleansing and soothing effects. They are, however, almost always injurious in eczema. The following shows the temperature range of the different varieties:—

Bath.	Water.	Vapour.	Air.
Cold	40° to 65° F.	...	...
Cool	65° to 75° F.	...	...
Tepid	85° to 95° F.	...	...
Warm	95° to 100° F.	100° to 115° F.	110° to 120.
Hot	100° to 110° F.	115° to 140° F.	120° to 180° or more.

2. **Wet Pack.**—The wet pack is a modified bath, which is especially useful in extensive psoriasis to remove scales and to diminish hyperæmia. A sheet is wrung out of cold or warm water, and the patient wrapped in it, then rolled up in a blanket; after remaining thus for from twenty to thirty minutes, or even more, the sheet is removed, the body rubbed dry, and then oil or a suitable ointment rubbed in to prevent the skin from cracking.

3. **Oil Packing.**—In highly inflammatory conditions, such as eczema, or pityriasis rubra, or acute inflammatory psoriasis, oil is preferable to water. Lint or linen dipped in the best olive oil is bandaged on, or the bandages themselves may be dipped in the oil, which must be quite fresh, as the least rancidity would produce irritation.

4. **Medicated Vapour Baths.**—These are generally either calomel or sulphur. The calomel vapour bath is very valuable in the treatment of syphilis; various forms of apparatus are sold for home use. From 15 to 30 grains of calomel may be volatilised with just sufficient water to excite the skin to moderate action. In public baths, the preliminary steaming is often over-done; the consequence is, that patients often faint during their use. At University College Hospital I find that the heat required to volatilise the calomel is enough to excite sufficient perspiration in most people, and since the steaming has been omitted, faintness is not induced.

For sulphur baths 1 to 2 ounces of sublimed sulphur may be used, but this is rarely required for skin diseases, but is useful for rheumatic people, and is sometimes used for syphilitics to slightly irritate the skin, if there is any doubt about the disease having been sufficiently treated.

Medicated Liquid Baths are used for a variety of diseases, and are of divers kinds. The proportions mentioned below are those used at University College Hospital since they were first started by Tilbury Fox, and quoted from his work. They are estimated for a full-length bath with 30 gallons of water at a temperature of 90° to 95° F. The emollient, alkaline, and sulphuret of potassium baths are the most commonly prescribed.

1. **Emollient Baths** are made of:—(*a*) Bran 2 to 6 lbs., (*b*) potato starch 1 lb., (*c*) gelatine 1 to 3 lbs., (*d*) linseed 1 lb., (*e*) marshmallow 4 lbs.; (*f*) size 2 to 4 lbs., to 20 or 30 gallons of water. Use in all erythematous, itchy, and scaly diseases.

2. **Alkaline.**—(*a*) Bicarbonate of soda ℥ij to ℥x, (*b*) carbonate of potash ℥ij to ℥vj, (*c*) borax ℥iij. The bicarbonate of soda may be used with bran liquor, made by infusing a gallon of bran. Use in eczema, psoriasis, urticaria, lichen, and prurigo, where there is much local irritation.

3. **Acid.**—Nitric or muriatic acid ℥j, or a mixture of nitric acid ℥j, or more, with hydrochloric acid in like quantity to 30 gallons of water. Use in chronic lichen and prurigo.

4. **Iodine.**—Iodine ʒss, iodide of potassium ℥ss, with ℥ij of glycerine, or iodine ʒj or more, with ℥j or ℥ij of liquor potassæ to 30 gallons of water. Use in scrofulous eruptions, in syphilis, and in squamous diseases.

5. **Bromine.**—20 drops of bromine with ℥ij bromide of potassium. Use as the iodine.

6. **Sulphuret of Potassium.**—℥ij to ʒiv to each bath. The balneum sulphuris co. of Startin, senr., is made with ℥ij of sulphur (precipitated), ℥j of hyposulphite of soda, and ℥ss of dilute sulphuric acid, with a pint of water, added to the usual 30 gallons of water. Use in itch, in chronic eczema, lichen, and psoriasis.

7. **Mercurial.**—Bichloride ʒj to ʒiij, with ʒj of hydrochloric acid; biniodide of mercury ʒj, with ℥ij of chloride of sodium. Use in pityriasis rubra and the syphilodermata, especially with ulceration.

CAUSTICS.

1. **Arsenic.**—Arsenious acid gr. 10, artificial cinnabar ʒss, rose ointment ℥ss (Hebra's Cosmé's paste); or it may be used as a powder with white sugar instead of the ointment.

2. Calomel ʒijss, bisulphuret of mercury ℈ij, arsenious acid ʒj (Startin, senr.). Use in lupus and strumous ulcers, rodent ulcers, and syphilis.

3. **Chromic Acid.**—A saturated solution is excellent for warts. Gr. 10 to gr. 30 to water ℥j for superficial glossitis, syphilitic or otherwise, and for syphilitic papilloma of tongue.

4. **Mercury, Acid Nitrate.**—B.P. solution; or pure mercury ℥j, nitric acid (sp. gr. 1·4) ℥ij (Startin, senr.). Use in lupus, syphilis, verruca necrogenica nævus, etc. The addition of ʒj of arsenious acid to Startin's formula is sometimes made.

5. Mercury bicyanide gr. 2 or more to ℥j of water. Paint it on in acne rosacea, and after two or three minutes wipe it off (Burgess).

Mercury Red Iodide. Gr. 10 to gr. 20 to glycerine ℥ss. Use in lupus and syphilis.

Mercury Perchloride ℥j, collodion ℥vj. Lupus and syphilis (Startin, senr.).

6. **Barium.**—Barium sulphide ℥ij, zinc oxide and starch each ℥iij. For a depilatory:—Make into a paste with water, and put on thin coating for ten to fifteen minutes; then clean off and apply bland ointment (Duhring); or the same proportion of sulphide of sodium may be used; but depilatories are not recommended; they often excite dermatitis, and are no better than shaving.

7. **Iodine.**—Linimentum B.P. (1 in 8 of spirit), or a watery solution, iodine ℥ss, potassium iodine ℥j, water ℥j. In glandular enlargements or lupus. **Coster's paint**, or paste, is iodine ℥j or ℥ij to colourless oil of tar ℥j; apply with a stiff brush. Excellent for the early stages of ringworm. Morrant Baker prefers creasote, and Alder Smith oil of cade, to the ol. picis liquid.

8. **Lime. Vienna Paste.**—Equal parts of unslaked lime and caustic potash; make into a paste with alcohol immediately before using. For lupus vulgaris, scrofuloderma, and syphilis.

9. **Potash, Caustic,** solid stick, or saturated solution. For same as Vienna paste. Weaker solutions gr. 10 to 30 to ℥j may be painted on, and washed off in a few seconds, to clean the surface, in chronic inflammations, *e.g.*, some cases of sycosis.

10. **Silver Nitrate,** solid stick; very useful for lupus vulgaris, to be bored forcibly in, so as to plough up the diseased tissue. Gr. 5 to gr. 40, in spirit of nitrous æther ℥j, may be painted on in some cases of eczema and pruritus, especially about the anus and genitals, and in some other chronic inflammations.

11. Chloride of zinc ℥xvj, powdered opium ℥jss, hydrochloric acid ℥vj, boiling water to ℥xx; dissolve. To 1 ounce of the solution add 2 drachms of wheaten flour; mix (Middlesex formula). Lupus, epithelioma, rodent ulcer, etc.

12. Zinc nitrate 1 part, bread mass 2 parts. For same.

13. **Salicylic Acid.**—Glycerine ℥j, salicylic acid enough to make a thick cream. To be applied on lint or painted on. For warts, lupus, and epidermic thickenings; ℥j of carbolic acid or creasote may be added to diminish the painfulness of the application.

14. **Zinc and Mercury.**—Starch 37 parts, wheat flour 112 parts, perchloride of mercury 1 part, dry chloride of zinc 110 parts, iodol 10 parts, croton chloral 10 parts, bromide of camphor 10 parts, crystallised carbolic acid 10 parts. Mix them in a mortar in powder, then add gradually enough distilled water to form a homogeneous paste of the consistence of putty. It will keep a long time. The hands should be wetted when applying it, and the paste allowed to remain on from six to twenty-four hours (Jules Félix).

LOTIONS.

STIMULANT AND ANTISEPTIC LOTIONS.

Mercury.

1. Perchloride of mercury gr. 4, dilute nitric acid ʒj, dilute hydrocyanic acid ʒj, glycerine ʒij, water ℥viij (Startin, senr.'s, lotio hydrargyri bichloridi). Use in syphilitic eruptions, pityriasis versicolor, chloasma, freckles, etc.

2. Perchloride of mercury gr. 1, distilled water ℥ij = 1 in 1,000 nearly. For syphilitic sores.

3. Perchloride of mercury gr. 8, distilled water ℥iv, sulphate of zinc and acetate of lead of each ℈ij, alcohol ʒij. Hardy's lotion for freckles.

4. Perchloride of mercury gr. 6, diluted acetic acid ʒij, borax ℈ij, rose-water ℥iv. For freckles (Bulkley). Apply twice a day.

5. Perchloride of mercury gr. 2, tincture of benzoin ʒss, almond emulsion ℥j. For freckles (Duhring).

Silver.

6. Nitrate of silver gr. 2 to 10, water or spirit of nitrous æther ℥j. For eczema and erythemata.

Soft Soap.

7. Oil of cade, soft soap, and alcohol, equal parts, oil of lavender ʒjss (Anderson). Similar to Hebra's tinct. sapon. viridis cum pice. Tar may be used instead of oil of cade, or less oil of cade employed. For chronic eczema, psoriasis of the scalp or knee, etc.

8. Soft soap, or green soap, in alcohol, equal parts; Hebra's spiritus saponatus viridis. To remove scales of psoriasis and seborrhœa.

8*a*. Green soft soap alone is very useful for a similar purpose.

Sulphur.

9. Precipitated sulphur, alcohol āā ℥j. For acne (Hebra).

9*a*. Sulphur, alcohol, æther, glycerine, carbonate of potash, of each ʒij, rosewater ℥viij for acne, or without the water rubbed in for comedones.

10. Sulphuret of potassium ℥ss, limewater ℥xvj. For pityriasis versicolor, pustular and parasitic diseases.

11. Sulphuret of potassium, sulphate of zinc, of each ʒj, rosewater ℥iv. For acne indurata (Bulkley). Duhring speaks highly of the same lotion for lupus erythematosus.

Tar.

12. Liq. carbonis detergens ʒj to ʒij, solution of the subacetate of lead ʒj to ʒij, rosewater ℥viij. For eczema and pruritus.

13. Liq. carbonis detergens, diluted 1 to 40 or 1 to 80 with water or spirit, may be painted on in chronic eczema.

14. Liquor carbonis detergens ʒij, calamine lotion ℥viij.

Thymol.

14*a*. Thymol ʒj, liq. potassæ ʒj, glycerine ℥ss, elderflower water ℥viij. A good hair lotion for dandriff, etc. For other hair lotions see formulæ 43 to 48.

ASTRINGENT LOTIONS.

15. Collodion (not the flexile). Acts by mechanical compression. Useful in dilated vessels of acne rosacea, in lupus erythematosus, and in small superficial capillary nævi.

16. Hamamelis tincture 1 part to water 4 parts. For dilated capillaries.

17. Tannic acid gr. 40, French vinegar ʒss, water ʒvijss. For seborrhœa (Neligan), and in hyperidrosis.

18. Alum gr. 20, sulphate of zinc gr. 10, glycerine ʒj, rosewater ʒiv. For erythema, intertrigo, and eczema (Tilbury Fox).

19. Boric acid, a saturated solution. For eczema and erythemata.

ANTI-PRURITIC LOTIONS.

20. Alkaline solutions and certain antiseptics exercise most influence in this respect.

21. Borax ʒij, glycerine ʒss, water a quart. In urticaria, and as a wash for the head in seborrhœa.

22. Borax, carbonate of ammonia, of each ʒjss, glycerine ʒj, diluted hydrocyanic acid ʒiij, water ʒxvj, diluted 1 to 4 times (Startin, senr.). For vesicular and sebaceous diseases.

23. Carbonate of potash ʒij, water ʒviij. In the early stages of eczema, to allay itching.

24. Soda bicarbonate ʒj or ʒij, glycerine ʒjss, elder-flower water ʒvj. Urticaria, some eczemas, and pruritus.

25. Liq. carbonis detergens ʒij, water ʒviij. For pruritus, urticaria, and eczema, when not too acute. Begin with weaker lotion for eczema.

26. Carbolic acid, 1 in 60 of water. For pruritus and urticaria.

27. Terebene ʒj, water ʒviij. For pruritus and urticaria.

28. Sanitas ʒij to ʒiv, water to ʒviij. For pruritus and urticaria.

29. Salicylic acid ʒij, borax ʒj, glycerine *q.s.* Mix the acid and borax with ʒiv of glycerine, heat gently until dissolved, then add glycerine to make up ʒj. This can then be diluted with glycerine, alcohol, or water to any extent. ʒj of the first mixture, ʒj alcohol, water to ʒviij, is a good proportion. Very useful in pruritus and urticaria, and does not smell.

30. Menthol gr. 2 to gr. 10 to water ʒj.

31. Solution of subacetate of lead ʒij to ʒiv, distilled water to ʒviij. For same.

32. Perchloride of mercury gr. 2, glycerine ʒss, chloroform water to ʒviij. For same.

33. Hydrocyanic acid dilute ʒj, corrosive sublimate gr. 1, emulsion of almonds or elder-flower water ʒvj.

33*a*. Hydrocyanic acid ʒjss, solution of acetate of ammonia ʒj, infusion of tobacco to ʒviij. For pruritus ani seu vulvæ (Tilbury Fox).

33*b*. A similar lotion, but with tinct. digitalis ʒiij, and rose-water instead of tobacco-water (Thompson).

34. Hydrocyanic acid dilute ʒij, borax ʒj, rose-water ʒviij. For senile pruritus (Neligan).

35. Cyanide of potassium gr. 15, water ʒviij. For pruritus pudendi (Hardy). Keep in a dark place, and use with great caution.

36. Potassium cyanide ʒj, water a pint. To be kept in a dark place. For pruritus. Use with caution.

37. Benzoin (compound tincture of) or Friar's balsam. For pruritus vulvæ (Reeves). To be painted on undiluted, with a camel's-hair brush. An excellent plan.

38. Benzoic acid ʒij, water ℥viij. For pruritus and urticaria.

SEDATIVE ASTRINGENT LOTIONS.

Lead.

38*a*. Lead.—Solution of the subacetate ♏v to ♏xx, glycerine ♏xv, water ℥j. For erythema, eczema, excoriations, etc.

39. Lead lactate.—Solution of the subacetate ʒj, fresh milk ℥ij. Shake well together in a bottle. For eczema and other acute inflammations.

40. Lead, glycerine of subacetate, B.P.—It may be painted on as it is in chronic eczema ; in more active cases, it is diluted 1 part to 7 of glycerine at first, and the strength gradually increased. It may also be diluted with distilled water.

Zinc.

41. Calamine lotion.—Powdered calamine ℈ij, oxide of zinc ʒss, glycerine ♏xv, rose-water ℥j. For erythema and eczema, where there is little or no discharge, and for most actively hyperæmic conditions.

Bismuth.

42. Bismuth nitrate gr. 7½, oxide of zinc ʒss, glycerine ♏xv, hyd. perchlor. gr. ¼, rose-water ℥j. For acne rosacea and other hyperæmic conditions.

STIMULANTS FOR THE SCALP, OR HAIR LOTIONS.

43. Strong liquid ammonia ʒj, sweet almond oil ℥j, spirit of rosemary ʒiv, honey-water ʒij. For baldness (Wilson).

44. Strong ammonia liniment ℥ss, castor oil ℥ss, purified spirit of turpentine ℥ss, white precipitate gr. 15. Brush into the scalp with a hard brush (Tilbury Fox).

45. Tincture of cantharides ℥j, distilled vinegar ℥jss, glycerine ʒjss, spirit of rosemary ℥jss, rose-water to ℥viij. To be sponged into the scalp night and morning (Tilbury Fox).

46. Expressed oil of mace ℥ss, spirit of wine ℥viij. To be sponged into the scalp (Bateman).

47. Tincture of cantharides ℥j, distilled vinegar ℥iijss, rose-water to ℥viij.

48. Vinegar of cantharides ℥j, glycerine ʒvj, spirit of rosemary ℥ij, rose-water to ℥viij. To be sponged in night and morning.

49. Perchloride of mercury gr. 2, chloride of ammonium gr. 10, resorcin gr. 20, eau de cologne ℥ij, glycerine ʒij, rose-water to ℥viij. For seborrhœa capitis and alopecia.

50. Sozo-iodolate of soda ʒij, eau de cologne ℥ij, glycerine ʒij, rose-water to ℥viij. For the same.

SOOTHING AND PROTECTING OINTMENTS.

1. Spermaceti ointment B.P.

2. Simple ointment B.P.

3. Ceratum petrolei (Martindale): vaseline 2 parts, paraffin (135° to 140°) 1 part. Melt and stir till cold.

4. Lanolin ʒvj, olive or almond oil ʒij. Lanolin alone is too sticky. Or lanolin ʒv, parolein ʒiij.

Cucumber.

5. Cucumbers 750 parts. Grate into a pulp, and add rectified spirit 250 parts. Pass through percolator to make spirit of cucumber. Then take lard 125 parts, spermaceti 15, white wax 8, spirit of cucumber 8. Melt the fats, put them into a warm mortar, and stir in the liquor.

Rose Ointment.

6. Lard ℥j, white wax ʒij. Melt, and when half cooled add oil of bergamot ♏iij, otto rosar. ♏ij. Used as a basis with other ingredients.

Rumex.

7. Rumex root ℥xviij, yellow wax ℥ij, prepared lard ℥xij. Bruise the root, boil for two hours in distilled water, strain and evaporate to ℥iv. Add gradually the lard and wax already melted, and stir the whole until cold.

Any of the above ointments may be used as a menstruum for more active remedies.

SEDATIVE ASTRINGENT OINTMENTS.

Bismuth.

8. Bismuth oxide ℥j, oleic acid ℥viij, white wax ℥iij. To be made in the same way as the oleate of zinc. To form an ointment, equal parts of vaseline, lard, or lanolin must be added. McCall Anderson strongly advocates this for eczema. Bismuth oleate may also be made by double decomposition.

Boric Acid.

9. Boric acid ʒss, benzoated lard ℥j. It is very important that the boric acid should be ground into an impalpable powder; merely rubbing in a mortar is insufficient. Excellent in eczema, and as an antiseptic in, wounds and excoriations.

Lead.

10. Ung. diachyli (Hebra).—Boil together olive oil ℥xv, litharge ℥iij ʒvj, to a good consistence, and add ʒij of oil of lavender. For eczema spread on linen and bind on. A simple way is to melt together equal parts of lead plaster and olive oil. These ointments are really oleates of lead.

11. Solution of the subacetate of lead ♏xv to ♏xxx, vaseline, lanolin, or lard ℥j.

12. Lead (carbonate of) gr. 4, glycerine ʒj, simple ointment ℥j. For erythema (Tilbury Fox).

Zinc.

13. Prepared lard ℥vj, powdered benzoin ʒj. Melt together for twenty-four hours at a gentle heat in a closed vessel, and then strain and add

oxide of zinc ʒj. Mix till cold and strain. This is Wilson's "ung. zinci oxidi benzoatum," and is a well-known remedy for eczema. The ung. zinci B.P. is nearly the same, but with less benzoin.

14. Zinc oleate, as devised by Mr. Marshall, is made by dissolving ʒj of oxide of zinc in ʒviij of oleic acid by means of a water bath after they have been mixed for two hours. An equal weight of vaseline is stirred in to make it to the consistency of an ointment. Since my advocacy of it for eczema it has been widely adopted, and is now in B.P. Shoemaker has proposed to have this and other oleates made by double decomposition. A sodium oleate is decomposed by means of a saturated solution of zinc sulphate. The precipitate is boiled out and dried, and then reduced to an impalpable powder like French chalk. One part to 3 of any fatty vehicle is the proportion he recommends. I have used 1 to 7. It makes an excellent ointment, as there is no free oleic acid, and it is therefore an improvement. Bismuth and lead oleates may be made on similar lines.

Ung. calaminæ B.P. for wounds and excoriations.

ANTISEPTIC OINTMENTS.

Iodoform.

15. Iodoform gr. 3 to gr. 5, vaseline or lard ʒj.

16. Iodol gr. 3 to gr. 5, vaseline or lard ʒj.

17. Europhen gr. 5 to gr. 10, vaseline or lard ʒj.

These ointments are valuable for pustular eczema and impetigo contagiosa. Mr. Gerrard, Dispenser at University College Hospital, made trial of a large number of plans for rendering the odour of iodoform less penetrating and disagreeable. The addition of creolin ♏v to ʒj of ointment, where there was not more than 20 grains of iodoform, was one of the most successful. An ointment made by macerating freshly ground coffee in melted lard, and straining, was also very good, but not readily prepared. The powdered oleate of zinc ʒj, iodoform gr. 5 to gr. 20, destroyed much of the odour. Of the various substitutes for iodoform, europhen is the next most effectual, but nothing entirely replaces it as a destroyer of pus cocci, and probably also of tubercle bacilli.

Mercury.

15. Ammoniated mercury gr. 10, lard ʒj. Specific for impetigo contagiosa after the crusts have been removed.

STIMULATING OINTMENTS.

Mercury.

Ung. hydrarg. ammon. B.P., ung. hyd. ox. flav. of the same strength as the red oxide of the B.P., ung. hyd. nitrat. and also dil. B.P. All these are useful separately or combined, strong or diluted, in chronic eczema. seborrhœa of scalp, and psoriasis.

16. Green iodide of mercury gr. 2 to gr. 15, lard ʒj. For acne (Hardy).

17. Red iodide of mercury gr. 5 to gr. 20, lard ʒj. For tubercular syphilis, lupus, and acne indurata. A powerful preparation, to be used tentatively over a small area. Iodo-chloride of mercury gr. 3 to gr. 10, lard ʒj. To be used in the same way as the iodides.

Sulphur.

18. Iodide of sulphur gr. 10 to ʒj, lard ℥j. For acne.

19. Powdered hypochloride of sulphur ʒij, subcarbonate of potash gr. 10, lard ℥j, oil of bitter almonds ♏x (Wilson). An excellent remedy for acne, but it must always be made with the recently prepared powder of the hypochloride which has not been exposed to the air; if made with the liquid, it decomposes and irritates. Half or even one quarter strength is often sufficient.

Tar and its Allies.

20. Ung. picis B.P. For psoriasis and chronic eczema. (*a*) Creasote, (*b*) oil of cade, (*c*) ol. rusci, ʒj or more of either to ℥j of lard, is much used for psoriasis and chronic inflammations.

21. Tar ʒj, camphor gr. 10, lard ℥j. In chronic eczema and other inflammations with pruritus.

Lead.

22. Iodide of lead gr. 12, chloroform ♏xx, glycerine ʒj, lard ℥j. For eczema and psoriasis.

Miscellaneous.

23. Perchloride of mercury gr. 2 to gr. 5, carbolic acid and olive oil of each ♏xx, benzoated oxide of zinc ointment ℥j (Unna). For lichen planus.

LINIMENTS AND OILY PREPARATIONS.

Carron Oil.

1. Lime water, olive or linseed oil, of each equal parts. For burns and superficial dermatitis.

Calamine Liniment.

2. Prepared calamine ℈ij, zinc oxide ʒss, lime water and olive oil of each ℥ss. For eczema and acute dermatitis of all kinds.

In both the preceding, the parts are wrapped in the oils, not rubbed with them. The following are rubbed in :—

Carbolic Oil.

3. Carbolic acid 1 part, olive oil 19 parts. For pruritic eruptions.

Thymol Oil.

4. Thymol gr. 20 to ʒj, olive oil ʒix. For seborrhœa of the scalp, or in acute lichen planus.

Turpentine Oil.

5. Turpentine or oil of silver pine ʒj to ʒvj, olive oil to ℥j. For psoriasis. Oil of cade is a good addition, ʒj to ʒij to ℥j.

6. Perchloride of mercury gr. 2 to gr. 5, sp. vini rect. ʒj, ol. pini sylvest. ʒvij. For alopecia areata. Should not be kept more than a week.

7. Camphor and chloral equal parts rubbed up together. It makes a thick liquid useful for severe local itching.

8. (*a*) Oil of cade, (*b*) beech or (*c*) birch oil, ʒj to ʒiv, olive oil to the ℥j. For psoriasis, lichen planus, etc.

LUPUS TREATMENT.

Tuberculin Treatment for Lupus Vulgaris.

To make Solution.—A one per cent. solution is made, and as the dilute solution is not reliable after a week, only the quantity likely to be required should be prepared. The measure bottle and syringe must be sterilised by rinsing first with absolute alcohol and then with a ½ per cent. solution of carbolic acid in distilled water. Then $\frac{1}{10}$ of a cubic centimetre should be drawn up into the syringe and emptied into a stoppered measure graduated into cubic centimetres; the syringe should be

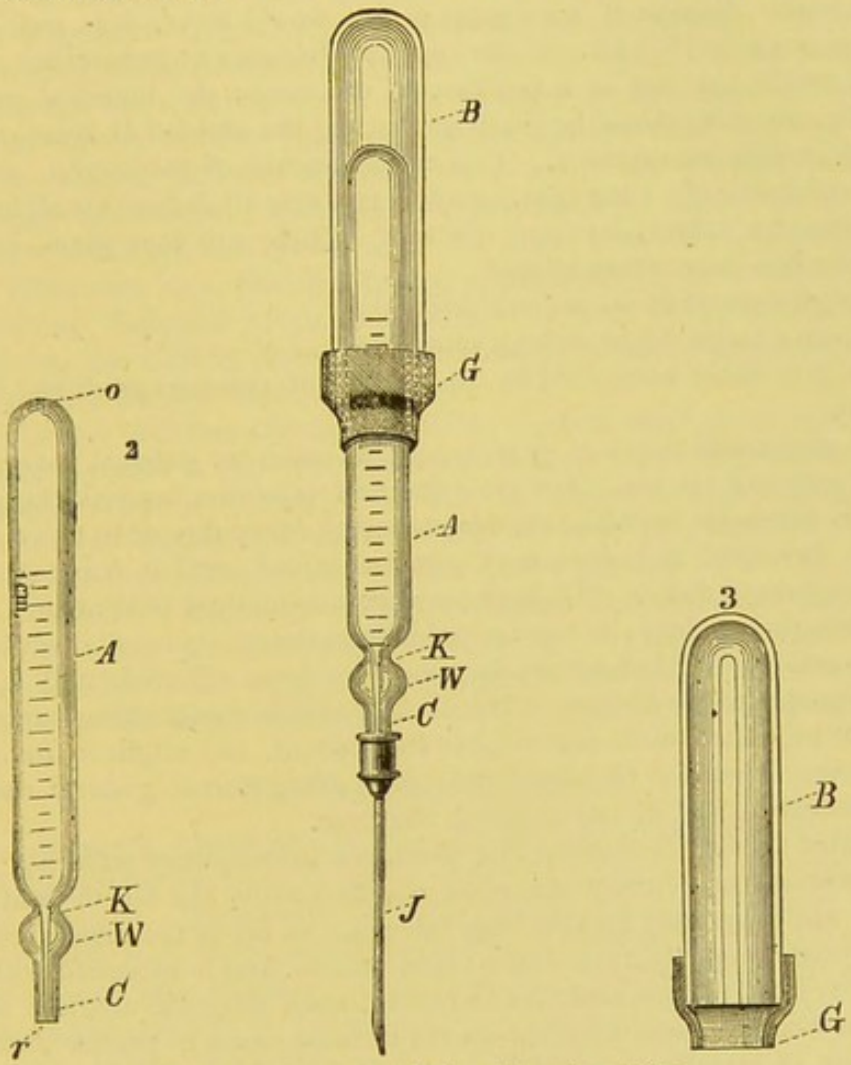

Fig. 92.—Stroschein's hypodermic syringe.

rinsed out several times with the carbolised distilled water and the rinsings added to the tuberculin in the measure, and the whole made up with the carbolised water to exactly 10 c.c., and the measure then stoppered and inclined several times to mix the fluid, but without producing frothing. Where a large quantity is likely to be used, it is best to make a 10 per cent. solution and dilute as required.

The best syringe is Stroschein's (fig. 92), consisting simply of an inner tube ground at one end to fit the needle, with a pinhole at the other end, *o*. It slips into a large tube, and the two are connected by a thick rubber

band. The compression of the air between the two tubes is the driving force, and no piston is therefore required. The inner tube is graduated to tenths of a cubic centimetre. It is far superior to every other syringe for simplicity and convenience for cleansing, and before each injection the syringe should be sterilised.

Before injecting tuberculin into a patient, a thorough physical examination should be made to ascertain, as far as is possible, the whole extent of tubercular disease, whether visceral or cutaneous. For on the one hand the general reactions are in proportion to the extent of the disease, and on the other, since tuberculin does not possess the destructive power on tubercular disease it was supposed it would have, it is well to "let sleeping dogs lie," and not stir up an obsolescent tubercular mass in viscera which are not in a position to discharge the liquefied products. Secondly, the dose should be small at first, as the amount of reaction varies so much in different persons. Two milligrammes of tuberculin, or $\frac{2}{10}$ of a cubic centimetre of a 1 per cent. solution, is a safe adult dose for all but cases with extensive tubercular lung disease. There are four plans on which tuberculin has been administered.

1. To give small doses at long intervals.
2. To give large doses at long intervals.
3. To give doses measured by the amount of reaction produced (Koch's method).
4. To give small doses at first, repeat as soon as general reaction has ceased, generally in two days after the first injection, and as the general reactions diminish, increase the frequency to every day or to twice or even thrice a day, and the dose may also be raised until it reaches a decigramme or more daily. This is the continuous method of Watson Cheyne.

The first plan is bad; it cannot produce satisfactory results, while tolerance is established before much good has been effected, and it is not unlikely to spread the disease. The second avoids establishing rapid tolerance, but produces much suffering to the patient, and might be dangerous to those very sensitive to tuberculin; moreover, violent general reactions are undesirable, and do not assist in the cure.

The third or Koch's method also produces unnecessary suffering to the patient without sufficiently adequate results; while the fourth continuous method, whilst speedily establishing tolerance as far as the general reaction is concerned, keeps up a continuous local action, and is attended with good ultimate results. It necessitates, however, such frequent medical attendance that would prevent its employment in most cases in private practice.

The site of injection should be washed with one in two thousand corrosive sublimate immediately before injection. This is usually made in the interscapular region or other part of the back, and it is doubtless always best to make the first injections in the back; but I have found that when the lupus ceases to react by injections there, local injections into the diseased area itself in the direction of the lymph flow, will still produce a marked local and general effect, even with a comparatively small dose. In a typical case in an hour or two after the first injection the temperature begins to rise and continues to do so for some hours, the maximum being reached generally in six to nine hours. The temperature soon after this begins to fall gradually, and generally reaches the normal in twenty-four hours from

the time of injection. After the first two or three injections the rise of temperature is more abrupt, and is followed by an equally sudden fall, and may even be sub-normal, and after several injections continue so for days. Variations occur in the course of the temperature, such as a secondary rise after the first fall, but the great majority follow the course stated above. The maximum temperature is usually from 102° F. to 104° F., but this may be exceeded or the rise may be only slight. Other febrile symptoms accompany the rise of temperature, such as shivering, vomiting, pains in the limbs, back, and abdomen, a dry cough, and great drowsiness, which in cases of extreme reaction may go on to coma. In a small number, there is a general scarlatiniform, morbilliform, or patchy erythematous rash, situated round the hair follicles for the most part. This rash usually fades in a few days, but recurs or may be kept up by repeated injections. The local effects on the lupus are bright redness and swelling in and around the lesions, followed by a copious serous or sero-purulent discharge, which dries into crusts. After the local reaction has ceased, the scabs fall off and the reddened skin peels, while the lupus is flattened down considerably. Where the local reaction is slight, there may only be slight redness and swelling, followed by desquamation. Where many injections have been given, the patient becomes anæmic and much weakened, but soon picks up when the injections are left off.

It is obvious that this treatment entails a good deal of discomfort and even suffering, and in rare instances even danger; but when employed as I recommend, after the removal of all that can be got at by scraping, I have not found anything like the same amount of local or general reaction as would be the case before the removal of the great bulk of the diseased tissue. Moreover, nearly all the general pains and penalties may now be avoided by using the albuminoses which W. Hunter has isolated from tuberculin. These act on the lupus tissue without febrile disturbance, the substances which produce the pains and fever having been separated out.

Thiosinamine Treatment.

This treatment, introduced by Hans Hebra, aims at obtaining an alleviation of lupus vulgaris by injecting a 15 per cent. alcoholic solution into the skin of the back. Two-tenths of a cubic centimetre are injected to begin with, and this may be increased to a cubic centimetre. No ill effects of any kind have been observed; and as it acts like tuberculin by removing the secondary results of lupus, and can be used without the patient's avocations being interfered with, if further experience confirms its present promise, it will deprive tuberculin of its limited remaining sphere of usefulness.

Brooke's Ointment.

1. ℞. Zinci oxidi; amyli pulv. āā ʒ¼; vaselini albi ʒss; hyd. oleatis (5 per cent.) ʒj; acidi salicylici gr. 20; ichthyolis ♏xx; ol. lavandulæ q.s.; M. Fiat ung. Enough red Armenian bole and raw umber may be added to match the colour of the skin. The ointment is well rubbed in and covered with potato-starch powder. It is used to produce a certain amount of absorption of the lupus tissue.

2. My own formula is—Iodoform gr. 10; creolin ♏iij; adip. benz. ʒj. To be rubbed in at night, and calamine lotion applied in the daytime.

3. Salicylic acid ʒss, collodion ℥j, to be painted on for lupus erythematosus (Payne).

4. Resorcin gr. 10 or more, collodion ℥j; for similar purpose. The weaker preparation should first be used, as resorcin, and collodion sometimes, have a distinctly caustic effect.

5. Benzoline. To be well rubbed in to remove the fatty scales of lupus erythematosus; an antiseptic ointment like the iodoform and creolin to be rubbed in afterwards.

6. *Nascent Sulphurous Acid.* Solution I.:—Hyposulphide of soda gr. 40; distilled water ℥j. Solution II.:—Hydrochloric acid ♏v, distilled water ℥j. Apply No. I. on lint under oiled silk all night, and in the morning substitute No. II. (Harrison).

PASTES AND VARNISHES.

Pastes may be made hard or soft.

The hard pastes contain more or less gelatine. One of the most popular and generally useful is

Unna's Gelatine Paste.

1. Oxide of zinc, gelatine, of each ʒjss, glycerine ʒiij, aq. destill. ʒiv. To this, as a basis, gr. 5 or gr. 10 of salicylic acid, resorcin, ichthyol, thiol, or other antiseptic may be added. The solid mass must be melted by placing the pot in hot water; it is then painted on and dabbed with wool, to prevent its sticking to the clothing. It is useful in subacute and chronic eczema and similar inflammations, where discharge is absent, or very slight. In hot weather, less glycerine and more gelatine may be added; but it does not solidify nicely in very hot climates. It is not adapted for hairy parts, as its removal is then painful.

2. This is only one of a series. One contains ʒj of lard and all glycerine, instead of glycerine and water, with the same amount of zinc and gelatine; but the large amount of glycerine is sometimes an objection, as the gelatine will not dissolve.

Soft Pastes.

These can be applied like ointments, but spread on the skin, leaving a coating on it, and absorbing secretion, instead of sealing it up. One of the best is

Lassar's Paste.

3. Zinc oxide and powdered starch, of each ʒij, vaseline ℥ss, salicylic acid gr. 10. It can be used for eczemas and other inflammations, whether moist or dry, provided the discharge is only moderate. It should be spread thickly on, and covered with butter-cloth. Where the inflammation is acute, it is better to leave out the salicylic acid for a time, or use some less irritating antiseptic, as iodoform or europhen. Other variations will suggest themselves.

Ihle's Paste.

4. Lanolin, vaseline, zinc oxide, and starch, of each ʒij, resorcin gr. 10.

Unna's Paste.

5. Terra silicea ʒj or ʒij to the ʒj of zinc or other ointment answers well. According to Gründler, the substitution of 10 per cent. of carbonate of magnesia for some of the other powders increases the absorbing power.

VARNISHES.

Pick's Varnish (Linimentum Exsiccans).

6. Tragacanth 5 parts, glycerine 2 parts, distilled water 100 parts. It may be made by slowly triturating the powder with the water, or by letting the tragacanth soak in boiling water. Other ingredients, such as antiseptics, may be added. Used for eczematous surfaces, but it is not a very comfortable application.

Elliot's Bassorin Varnish.

7. Bassorin 48 parts, dextrin 25 parts, glycerine 10 parts, water to make 100 parts. It is claimed that it keeps better than Pick's formula, which it resembles, bassorin being the chief constituent of tragacanth. Used in eczema, acne, seborrhœic eczema, etc.

Unna's Ichthyol Varnish.

8. Ichthyol 40 parts, starch 40 parts, albumen 1 to 1½ parts, water to 100 parts. Another, without albumen, is ichthyol 25 parts, carbolic acid 2½ parts, starch 50 parts, water 22½ parts. Used for subacute eczema.

PLASTERS.

Emplastrum Fuscum of Germans.

1. Camphor ʒss, black pitch ʒvj, yellow wax ʒix, red oxide of lead ʒij, olive oil ʒiv. To be melted together until a little burned. For boils.

Emplastrum Hydrargyri (German Formula).

2. Mercury ʒiv, turpentine ʒij, yellow wax ʒiij, lead plaster ʒjss. Spread upon linen. For acne rosacea, lupus vulgaris and erythematosus.

Salicylic Acid Plaster (Unna).

3. It is made of 38 per cent. and 50 per cent. of the acid, equivalent to 25 or 10 grammes of the acid on ¼ of a quarter of a metre. It is made by Beiersdorf of Hamburg, and is valuable for softening and removing corns, callosities, and other epidermic thickenings.

Salicylic Acid and Creasote.

4. This is a similar plaster, with the addition of creasote to diminish the pain produced when the plaster is applied to lupus vulgaris, for which it is a valuable application. It is made of various strengths, from 20 per cent. salicylic acid and 4 per cent. creasote up to 40 per cent. of each. In both these plasters, the salicylic acid is combined with caoutchouc and oleate of alumina into a magma, and spread on gutta-percha with a muslin

backing. The salicylic acid is much more efficacious than when incorporated with the plaster basis, as is usually done. Unna has also used lanolin, with a small quantity of caoutchouc, as an excipient.

Emplastrum Vigo cum Mercurio.

5. Simple plaster 2,000 grammes, yellow wax 100, resin 100, ammoniacum gum 30, bdellium 30, olibanum 30, myrrh 30, saffron 20, mercury 600, liquid purified storax 300, larch turpentine 100, and oil of lavender 10. A blunderbuss handed down from the middle ages, and serviceable still. Much used in France for lupus and syphilitic infiltrations.

Vidal's Emplastrum Rubrum.

6. Red lead gr. 39, cinnabar gr. 23, diachylon plaster ʒj. Used for lupus, boils, pustular folliculitis, and ecthyma.

DUSTING POWDERS.

Zinc.

1. Oxide of zinc 1 part, powdered rice starch, maize, or kaolin 3 parts.

2. The same with ½ part of calamine or ½ part of iris root. For excoriated surfaces, intertrigo, and eczema.

Mercury.

3. Calomel 1 part, and powders 1 or 2, 3 to 6 parts. For erythema of buttocks, etc., in congenital syphilis, condylomata, etc.

Creasote.

4. Creasote ♏xvj, kaolin ʒj (Marshall). For erysipelas, erythema, eczema, etc.

Tar.

5. Wood tar 1 part, kaolin 4 parts (Sangster). For the same

Boric Acid.

6. Impalpably powdered boric acid 1 part, and kaolin, rice starch, or white fuller's earth 3 parts. A very good powder for intertrigo.

Camphor.

7. Camphor ʒss, alcohol *q.s.*, oxide of zinc and starch āā ʒj. Use as a powder to allay the burning heat of eczema (Anderson).

PARASITICIDES.

Animal Parasiticides.

1. The ung. sulphuris B.P. For scabies and vegetable parasitic eruptions.

2. Sulphur ʒss, ammoniated mercury gr. 5, sulphuret of mercury gr. 10. Mix and add olive oil ʒij, lard ʒij, creasote ♏iv = ung. sulphur. co. of Startin, senr., for scabies.

3. *Wilson's Formula.*—Sulphur ʒj, carbonate of potash ʒij, benzoated lard ʒv, oil of camomile ʒss. Less irritating than B.P.

4. *Helmerich's Formula.*—Sulphur ʒij, carbonate of potash ʒj, lard ʒviij.

5. *Hardy's Formula.*—Sulphur ʒj ; carbonate of potash ʒss, lard ʒvj.

6. *Wilkinson's Formula.*—Sulphur, tar, and lard, of each ʒij, precipitated chalk ʒj, sulphide of ammonium ʒss. For tinea tonsurans and scabies.

7. *Hebra's Formula.*—Sulphur, oil of beech or oil of cade, of each ʒiij lard and soft soap, of each ʒviij, prepared chalk ʒij.

8. *Naphthol.*—Naphthol 15 parts, prepared chalk 10 parts, lard 100 parts, soft soap 50 parts. For scabies, psoriasis, etc. (Kaposi). An excellent remedy; does not irritate like sulphur. Sometimes it is better to omit the soft soap.

9. *Cazenave's Solution.*—Iodide of sulphur, iodide of potassium, of each ʒiss, water ʒxxxij.

10. *Liquor Calcii Sulphidi.*—Quicklime ʒj, sulphur ʒv, water ʒxx. Boil for half an hour and filter. Make the quantity up to ʒxx. For scabies and psoriasis.

11. *Vlemingkx's Solution.*—Quicklime ʒij, sulphur ʒiv, water ʒxx. Boil in an iron vessel, and stir with a wooden spatula to a perfect union. For scabies and acne.

12. *Storax.*—Liquid storax ℥j, lard ℥ij. Melt and strain. For scabies and psoriasis.

12*a*. Ung. staphisagriæ B.P. For pediculi corporis.

Mercury.

13. Ung. hydrarg. ox. rub. B.P. For pediculi capitis.

14. Ung. hyd. ammon. B.P. For pediculi capitis.

15. Oleate of mercury, 5 per cent., ʒj, æther ʒj, alcohol ʒj. For pediculi capitis; destroys the nits also (Marshall).

16. Perchloride of mercury gr. 4, acetic acid ʒss, water ʒviij. For the nits of pediculi capitis; sponge small portions of the hair with the lotion.

Vegetable Parasiticides.

For early stage of ringworm or favus of scalp, blistering applications will often arrest the disease. They should not be used for children under six.

17. *Coster's Iodine Paint* (see Caustics, F. 7).—Paint on firmly, and let a crust be formed; remove this, and renew paint.

18. Hydrarg. perchlor. gr. 2 to gr. 4, acetic acid or glacial acetic acid ʒj. Makes a blister (Alder Smith). Use cautiously over a small area at a time.

19. Acetum cantharidis B.P.

20. Glycerine of carbolic acid B.P., or even 1 in 3.

Strong Applications for Later Stage of Ringworm.

These also should not be used in strumous children or those under six years of age, and at all times with caution and over a limited area at first.

21. Nitrate of mercury ointment, sulphur ointment, and carbolic acid in equal proportions, either diluted or not, as required. A good, but dirty preparation. It should be made without heat, and the carbolic acid thoroughly incorporated with the sulphur ointment before the citrine ointment is added, and this last should be free from excess of nitric acid (Alder Smith).

22. *Croton Oil.*—Either as a liniment, croton oil 1 part, olive oil 7 parts, cautiously increased. Use cautiously over about ½ in. square at a time. The pure oil may be used to individual hairs.

Boric Acid.

23. *Boric Acid.*—Boric acid gr. 20 or *q.s.*, sulphuric æther ʒj, rectified spirit ℥j. To make a clear saturated solution. To be dabbed on with a sponge, so as to soak into the scalp (Cavafy).

Chrysarobin.

24. Chrysarobin gr. 10 to gr. 20, benzole ℥j.

25. Chrysarobin gr. 7, chloroform ℥j (Alder Smith). For same purpose as boric acid solution.

26. Chrysarobin ʒss to ʒij, lanolin c̄ oleo ℥j. For ringworm of scalp, fork, and axillæ, and tropical forms; also valuable in alopecia areata. Patients should be warned of the possibility of its producing erythema.

27. Goa powder, which contains 80 per cent. chrysarobin, may be substituted.

Mercury.

28. Perchloride of mercury gr. 1 to gr. 3 in alcohol ℥j.

29. Perchloride of mercury gr. 2 to gr. 5, sp. vini *q.s.*, in lard ℥j.

30. (*a*) The yellow oxide, (*b*) the ammonio-chloride, and (*c*) the nitrate of mercury, are all parasiticides, but rather mild ones, and adapted for tinea circinata, (*d*) oleate of mercury 4 to 20 per cent. with or without lanolin, a very good preparation.

Salicylic Acid.

31. Salicylic acid gr. 40 to gr. 60, spirit ʒvj, æther ʒij. Or—

32. As an ointment in the same proportion to ℥j of lanolin c̄ oleo. I have also used Unna's plaster with some benefit, and the glycerine cream over a limited area.

32*a*. Salicylic acid gr. 10, collodion ℥j. Paint on for a week, then remove forcibly, one blade of epilation forceps being inserted beneath the collodion, then the pellicle pulled off; it brings a large portion of the diseased hair stumps away; but as the removal is rather painful, the treatment is not suited for the very young. When the scalp is clear, renew the application.

Thymol.

33. Thymol ʒss to ʒij, lanolin ℥ij. Thymol and menthol ʒss to ℥j of chloroform or spirit and æther (Malcolm Morris).

Copper Oleate.

34. Pure oleate of copper ʒss to ʒij; lanolin c̄ oleo ℥j. Valuable for tinea tonsurans. May be combined in equal proportions with mercuric oleate.

35. *Sulphurous Acid.*—Pure, or with an equal quantity of water. For tinea versicolor.

36. Hyposulphite of soda ʒvj, water ℥viij. For tinea versicolor and tinea cruris.

All the sulphur preparations are vegetable, as well as animal parasiticides.

37. Borax ʒiv, glycerine ʒij, water ℥vj. For tinea versicolor. Also glycerine of borax B.P. for lichen circinatus, tinea versicolor, and erythrasma.

Resorcin.

38. Resorcin ʒj, lanolin ʒj, and parolein ʒiij.

In some cases oleate of copper ʒj is a useful addition.

Turpentine.

39. Perchloride of mercury gr. 2, rectified spirit ʒj, turpentine ʒvij.

40. The ol. pini sylvestris is less unpleasant than ordinary turpentine, and ʒj of oil of lavender may be added. For tinea tonsurans and alopecia areata.

PILLS.

Laxative.

1. Aqueous extract of aloes gr. 1, extract of belladonna and extract of nux vomica, of each gr. $\frac{1}{3}$. Mix. Take one every night. For chronic constipation.

2. Aloin gr. $\frac{1}{3}$, strychnia gr. $\frac{1}{60}$, extract of belladonna leaves gr. $\frac{1}{3}$. For the same (Schieffelin).

Arsenic.

3. Arsenious acid gr. 1, extract of hop ʒj. Mix, and divide into 30 pills. Take one three times a day after meals. For psoriasis, etc.

4. *Asiatic Pills.*—Arsenious acid gr. 66, powdered black pepper ʒix, gum-arabic and water *q.s.* Divide into 800 pills; each pill contains ·0825 or $\frac{1}{12}$ of a grain of arsenious acid. This formula is much used on the Continent, and Hebra gave three pills once a day immediately before dinner, increasing the number according to the tolerance of the patient and the obstinacy of the disease. It is, however, much safer to begin with one after meals, as they are less likely to derange the digestion.

5. Arseniate of soda gr. 2, water sufficient to dissolve, powdered guaiacum ʒss, oxysulphuret of mercury gr. 20, mucilage *q.s.* Divide into 24 pills. One three times a day (Wilson).

6. Arseniate of soda gr. 2, extract of hops gr. 20, sulphate of iron gr. 20, extract of nux vomica gr. 3. Divide into 24 pills.

7. Arseniate of iron gr. 3, extract of hops ʒj, powdered marshmallow ʒss, orange-flower water *q.s.* Divide into 48 pills; each contains $\frac{1}{16}$ of a grain of arseniate of iron (Biett).

8. Iodide of arsenic gr. 2, manna gr. 40, mucilage *q.s.* Make 40 pills.

It is very questionable, considering the smallness of the dose, whether there is any material difference in the action of these different salts of arsenic, except so far as they differ in the relative quantity of arsenic they contain. It is always safer to give the arsenic after meals, and where there is irritability of stomach from its use, opium may be combined with it.

Phosphorus.

9. Phosphorus is sometimes useful in psoriasis as a nervine tonic, and, according to Burgess, in lupus. It is, however, so difficult to make up into pills, that unless the druggist is skilful either an inert substance or unequal dosage is produced. It is better to order them, therefore, in the ready-made form of coated pills, which are now furnished by so many reliable English and American houses.

POWDERS.

1. Sublimated sulphur gr. 10 to gr. 60, acid tartrate of potash gr. 10 to gr. 20, powdered ginger gr. 2, white sugar gr. 20. Take in milk night and morning for hyperidrosis of hands and feet, etc.

Pulvis Rhei cum Soda.

2. Powdered rhubarb gr. 1½, dried bicarbonate of soda gr. 2, powdered ginger gr. ½. (East London Hospital for Children.)

Pulv. Rhei Hydrargyrata.

3. Pulv. rhei c̄ soda gr. 4, hyd. c̄ cret. gr. 1. (East London Hospital for Children.)

Either is very useful as an alterative powder for children.

MIXTURES.

Aperient.

1. Magnesia carbonate gr. 15, magnesia sulphate ʒj, peppermint water ℥j.

2. The same, with the addition of the wine of colchicum ♏xv in gouty states.

3. Magnesia sulphate, soda sulphate, each ʒj, tincture of belladonna ♏v, syrup of ginger ʒss, infusion of cloves to ℥j. For scybala.

4. Sulphate of magnesia ʒj, compound tincture of cardamoms ♏xx, compound infusion of roses ℥j.

5. Soda bicarbonate gr. 10, pulv. rhei gr. 4, tincture of hyoscyamus ♏x, dill water ℥j. A mild aperient for dyspeptic conditions.

6. Cascara sagrada liquid extract ♏xv, tincture of belladonna ♏v, infusion of cloves ℥j.

Diuretic.

7. Acetate of potash gr. 15, bicarbonate of potash 10, spirits of juniper ♏xv, infusion of broom ℥j. Before meals, well diluted.

For Dyspepsia.

8. Soda bicarbonate gr. 10 to gr. 15, sal volatile ♏x, compound infusion of gentian ℥j. Half an hour before meals.

9. Soda bicarbonate gr. 10, tincture of nux vomica ♏viij, glycerine ♏xv, compound infusion of orange peel ℥j. Ten or fifteen drops of the cascara sagrada liquid extract is often a useful addition. To be taken half an hour before meals.

10. Bismuth carbonate gr. 10, soda bicarbonate gr. 10, compound powder of tragacanth gr. 10, infusion of orange ℥j, tincture of nux vomica ♏v.

For Atonic Dyspepsia, and as a Tonic.

11. Diluted nitro-hydrochloric acid ♏x to ♏xv, glycerine ♏xx, tincture of cascarilla ʒss, water ℥j. The same with sulphate of magnesia ʒj is often useful in bleeding piles.

12. Diluted phosphoric acid ♏xv, tincture of nux vomica ♏x, glycerine ♏xx, water to ℥j.

Ferruginous.

13. Citrate of iron and ammonium gr. 10, citrate of potash gr. 10, syrup of tolu ♏xx, infusion of calumba ℥j.

14. Citrate of iron and quinine gr. 5, syr. aurant ♏xv, water ℥j.

15. Mist. ferri comp. B.P.

16. Sulphate of iron gr. 2, sulphate of magnesia ℥jss, dilute sulphuric acid ♏xv, infusion of quassia to ℥j. For acne vulgaris, eczema, etc. "Startin's [the elder] mixture."

17. Syrup of the iodide of iron B.P. ℥ss to ℥j, in water after meals. The water must be added only just before it is taken. For lupus and strumous affections generally.

All iron mixtures should be taken immediately after meals.

Arsenical.

18. Fowler's solution ♏ij to ♏x, tincture of hop ℥ss, water ℥j. For psoriasis and other dry scaly eruptions, and for recurring vaso-motor disturbances, such as urticaria, pemphigus, hydroa.

19. Fowler's solution ♏iv, steel wine ℥j, simple syrup ♏xx, water ℥j.

20. Fowler's solution ♏v, citrate of iron and ammonium gr. 5, infusion of quassia ℥j.

21. The solution of arseniate of soda may be substituted in any of the above for Fowler's solution, but it is little more than half the strength of the potash salt.

22. Solution of chloride of arsenic ♏iv, dilute hydrochloric acid ♏vij, tincture of the perchloride of iron ♏x to ♏xx, water ℥j.

All these arsenical mixtures should be given well diluted immediately after meals.

Mercurial.

23. Perchloride of mercury gr. $\frac{1}{30}$ to gr. $\frac{1}{8}$, dilute hydrochloric acid ♏x, infusion of quassia ℥j.

24. Perchloride of mercury gr. $\frac{1}{10}$, iodide of potassium gr. 5, infusion of calumba ℥j, sal volatile ♏xv. For syphilis, especially in the tertiary stage.

25. Liquor arsenii et hydrargyri iodidi or Donovan's solution, dose ♏v to ♏xxx, with a bitter infusion ℥j, contains 1 per cent. each of the iodides of arsenic and mercury. It is useful in many chronic scaly eruptions, as well as syphilides.

26. Bicyanide of mercury gr. $\frac{1}{10}$, infusion of quassia ℥j.

Donovan's solution is used in the tertiary stage of syphilis. Many use the other mixtures quite early; for my own part, I use them chiefly in the later secondary and tertiary periods.

27. **Decocta Zittmanni.** *Strong.*—R. radicis sarsæ concisæ ℥xij, aquæ fontanæ libras lxxii.—Digest for twenty-four hours, then add tied up in a piece of linen: sacchari albi, aluminis āā ℥vj, calomelanos ℥iv, antimonii sulphurati ℥j. Simmer down to 12 quarts; towards the close of the simmering add: seminum anisi contus., seminum fœniculi contus., āā ℥ss, foliorum sennæ ℥iij, radicis glycyrrhizæ concisæ ℥jss. Press and strain; after standing until cool, decant the clear liquid and bottle 12 quarts.

Weak.—To the dregs of the strong decoction add: radicis sarsæ concisæ ʒvj, aquæ fontanæ libras lxxii. Simmer down to 12 quarts, and towards the close of the simmering add: Corticis fructûs citri contusi, cardamomum minorum contus., radicis glycyrrhizæ concisæ, āā ʒiij. Squeeze and strain, and after standing until cool, decant the clear liquid and bottle 12 quarts. One bottle of the stronger decoction is to be taken warm before twelve o'clock in the day, and one bottle of the weaker decoction cold between twelve o'clock and bedtime. It has been suggested that the mercurial and antimonial salts contained in the linen bag are useless, as undergoing no solution in the liquid, but Wilson fancied that the remedy answered better when prepared in accordance with the old formula than in a mutilated form. The treatment should be commenced with an active purge of calomel (gr. 4) and colocynth (gr. 8); if the action of the bowels be sluggish, the purgative should be repeated in the evening of the fourth day (Wilson).

27*a*. **Van Swieten's Spiritus Anti-venereus.**—Corrosive sublimate ʒss, spirit of wine ℥lxxx. Dissolve.

Miscellaneous Mixtures.

28. Oil of turpentine ♏x to ♏xxx, oil of lemon ♏ij, mucilage of acacia ʒss, water ʒss. Take immediately after meals three times a day. The last dose not to be later than six p.m., and during the treatment at least a quart of barley-water to be drunk in the course of twenty-four hours. For psoriasis, eczema, and hyperæmia of the skin (Author).

29. Antimonial wine ♏iij to ♏v, water ℥j. For eczema (Malcolm Morris).

30. Tincture of guaiacum ♏xl, tincture of aconite ♏ij, camphor water ℥ss. For chronic skin diseases, especially with rheumatic taint (Tilbury Fox).

31. Tincture of iodine ♏iij to ♏v, in water after meals. For lupus vulgaris (Liveing). He also gives it, combined with an equal quantity of Fowler's solution.

32. Tincture of cannabis indica ♏x to ♏xxx, compound powder of tragacanth gr. 10, water ʒj. For pruritus and prurigo (Bulkley).

Mercurial Hypodermic Injections.

1. *Lang's Grey Oil* (Oleum cinereum).—Mercury and lanolin, of each 3 parts, olive oil 4 parts = 30 per cent. During the first week the patient receives injections in two places in the back of ·1 to ·2 c.c. After from two to three days, the same quantity is injected in the same place, and every week ·1 c.c. is injected throughout the whole course. A 50 per cent. oil is also used, the dose being ·05 c.c.

2. *Yellow Oxide of Mercury* (Watraszewski's).—Yellow oxide of mercury 1 gramme, gum-arabic $\frac{1}{8}$ of a gramme, distilled water 30 grammes. Shake and inject a Pravaz syringeful deep into the tissues once a week, *i.e.*, 4 centigrammes or $\frac{3}{5}$ of a grain.

3. *Perchloride of Mercury* (Astley Bloxam).—Perchloride of mercury 6 grains, distilled water ʒj. Inject 20 drops ($\frac{1}{3}$ of a grain) once a week deep into the gluteal muscles.

4. *Glutine-peptone-sublimate* contains 25 per cent. of mercuric chloride. It is prepared in a 1 per cent. solution, and a Pravaz syringeful (= 1 centigramme, or $\frac{1}{6}$ of a grain) is injected.

5. *Succinimide of Mercury.*—1 per cent. solution. Dose, a Pravaz syringeful, or $\frac{1}{8}$ to $\frac{1}{3}$ of a grain (Vollert). Selenew thinks it is equally efficacious with the yellow oxide, and superior to the alanate, the salicylate, or the grey oil. Calomel injections are more dangerous.

6. *Schwimmer's Formula for Hypodermic Injection in Syphilis.*—Sozöiodolate of mercury gr. 12, iodide of potassium gr. 25, distilled water ʒijss. Inject 1 Pravaz syringeful a week, equal to an inunction of ʒv ung. hyd.

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