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Publication/Creation

London : H.K. Lewis, 1888.

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DISEASES OF THE SKIN.

DISEASES OF THE SKIN

THEIR

DESCRIPTION, PATHOLOGY, DIAGNOSIS,

AND TREATMENT

BY

H. RADCLIFFE CROCKER

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56737

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.

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 drawn 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 uncon-

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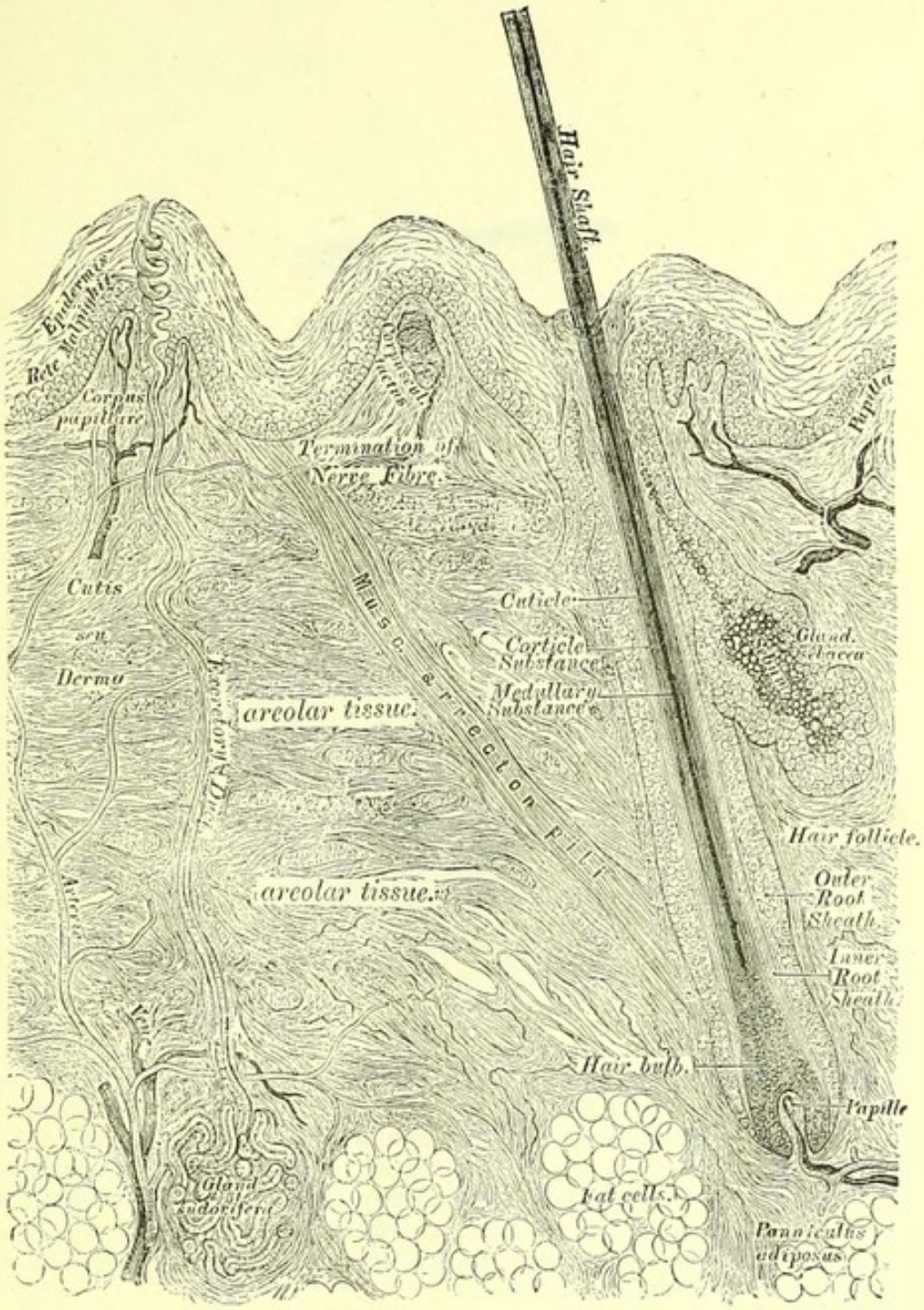

Fig. 1 is a general diagrammatic view of the skin, after Heitzmann. It shows three divisions of the skin, viz., the epidermis or epithelial part; the corium or true skin or fibrous part; and the subcutaneous tissue, panniculus adiposus or fat layer. In the upper part of the corium, called the papillary 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.

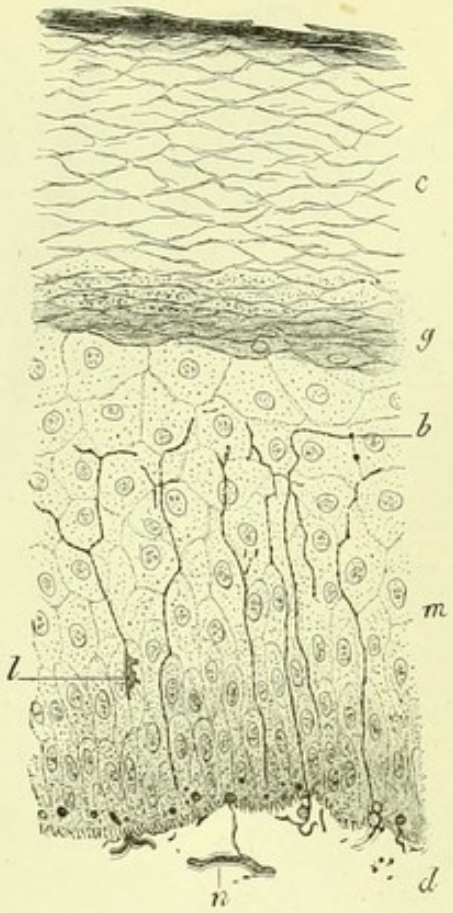

Fig. 2, from Ranvier's *Histology*, shows the three principal divisions of the epidermis, viz., the horny layer (*c*), the granular layer (*g*), and the rete Malpighii, the mucous or prickle cell layer (*m*). To these some add a fourth layer, or stratum lucidum, which lies just above *g*, but it is only 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.

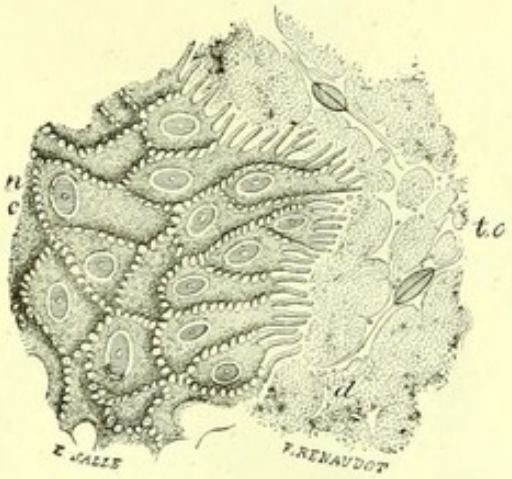

Fig. 3, from Ranvier's *Histology*, shows the cells of the rete Malpighii more highly magnified in order to demonstrate their prickle-like processes, which, at their juncture with those of the neighbouring cells, leave small channels between the cells.

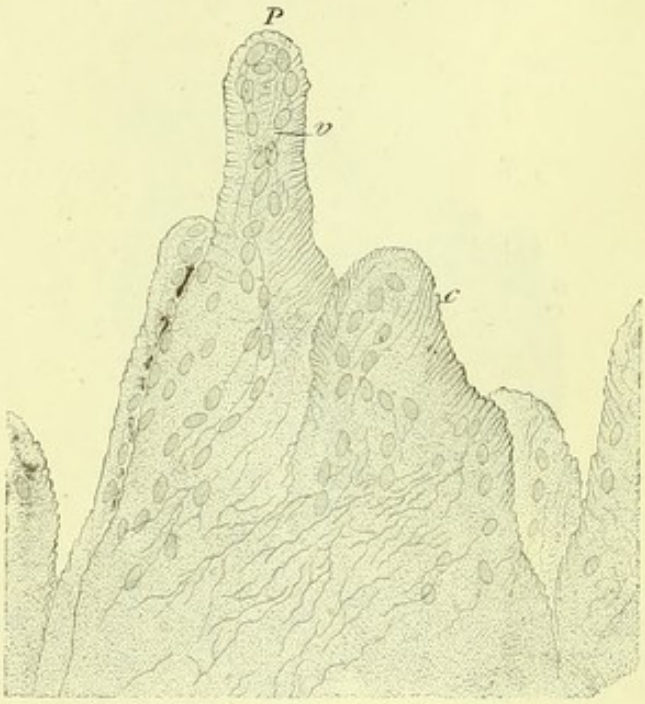

Fig. 4, also from Ranvier, shows the papillæ of the pulp of the finger after the epidermis has been detached by soaking in iodized serum : *P*, papillæ ; *v*, blood vessel ; *c*, papillary ridges. Other views of the papillæ are exhibited in Fig. 5 and Fig. 7.

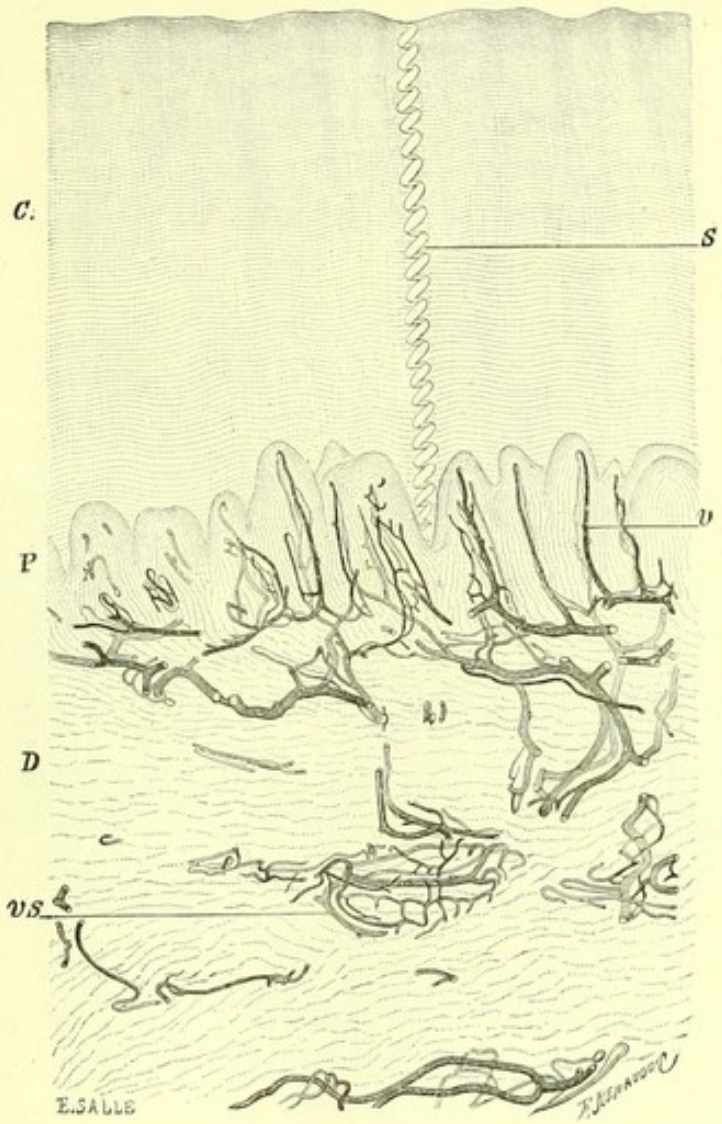

Fig. 5, from Ranvier, shows the arrangement of the blood-vessels in the papillary layer of the corium: *c* is the epidermis traversed by a sweat channel, *s*; *d* is the corium; *p* points to the papillæ; and *v*, the arterial and venous capillaries of the papillæ, constituting the superficial or papillary 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.

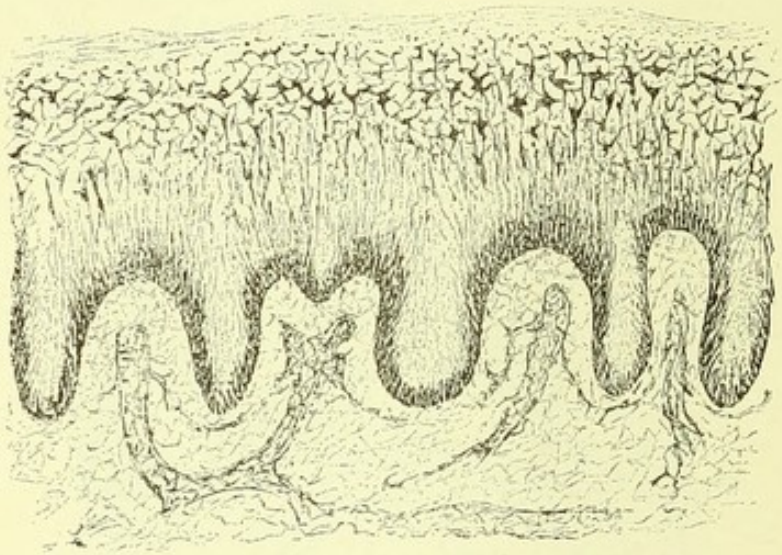

Fig. 6.—Staining with gold of all the lymphatic channels of the papillary layer and epidermis of a slightly œdematous skin (Unna).

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.

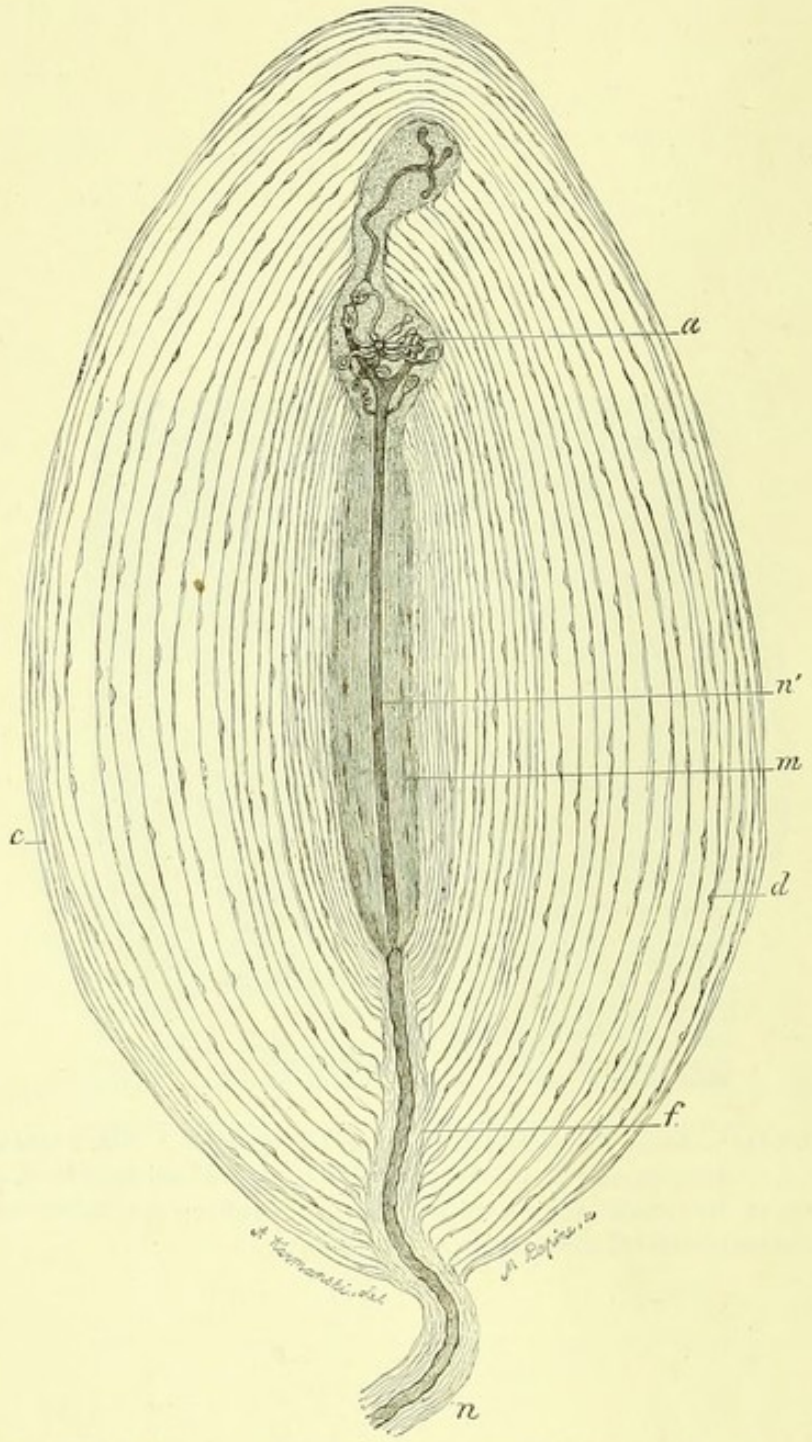

Fig. 8 (Ranvier), Pacinian corpuscle from the mesentery of a cat: *c*, capsules; *d*, endothelial lines which separate them; *n*, afferent nerve; *f*, funiculus; *m*, central club formation; *n'*, terminal fibre; *a*, point where one of the branches of the terminal fibre is divided into a great number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

ABBREVIATIONS

(UNLESS OTHERWISE STATED).

"Hebra" refers to the New Sydenham Society's translation of Hebra and Kaposi's great work on Diseases of the Skin.

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

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

"Schwimmer" refers to *Die Neuropathischen Dermatonosen.*

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

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

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

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.*, Tâches; *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 ruber 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 the corium, and connected with the 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 used 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 may be due to inflammation; some of them may then go on to vesiculation or pustulation, as the acuminate ones of papular eczema, or the flat, angular ones of lichen planus, which may have a central depression. Some inflammatory papules—*e.g.*, some papular syphilides—are scaly; and excessive hornification of the epidermic follicular lining, as in keratosis pilaris, produces papules. Or they may be caused 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. 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.

Tuberculæ. *Synonyms.* — Tubercles; *Fr.*, Tubercles; *Ger.*, Knoten.

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

This 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, the term 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 tubercles, for authors are not strict in their discrimination between a tumour and a tubercle. 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. Tubercles of this character often go on by peripheral extension and coalesce 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.*, Knollen.

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 attachments. They are raised to a very variable extent, with superficial or deep attachments, 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 of the skin 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, course, duration, depth, mode of evolution, 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 is usually clear, straw-coloured, consisting of serum, and is therefore alkaline and albuminous, but sometimes it 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 acutely inflammatory affection of the skin.

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

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, but some are pointed, and occasionally 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 forming a firm crust, yellowish, greenish, or brownish if blood-stained; or the pustules may dry up, and the crust is then drier, 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; *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 of very various sizes, from a pin's head to a pigeon'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 purpuric, 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 any previous acute hyperæmia, and erythematous eruptions, especially the exanthemata like scarlatina or 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 circinata, or 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, quantity, colour, being separate or in crusts, their presence as symptoms of the lesion or as sequelæ.

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, as in favus, which are yellow and powdery, 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. Their 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 scabbed-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; Hautschrunden.

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 angle 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 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 clean or sloughy, covered with pus or serum only, or bleed readily; 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 cicatrization, 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

* Langer, *Sitzungs, Berichte 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.

areas of distribution. This cleavage, or more directly the vascular distribution consequent on the cleavage, has been found

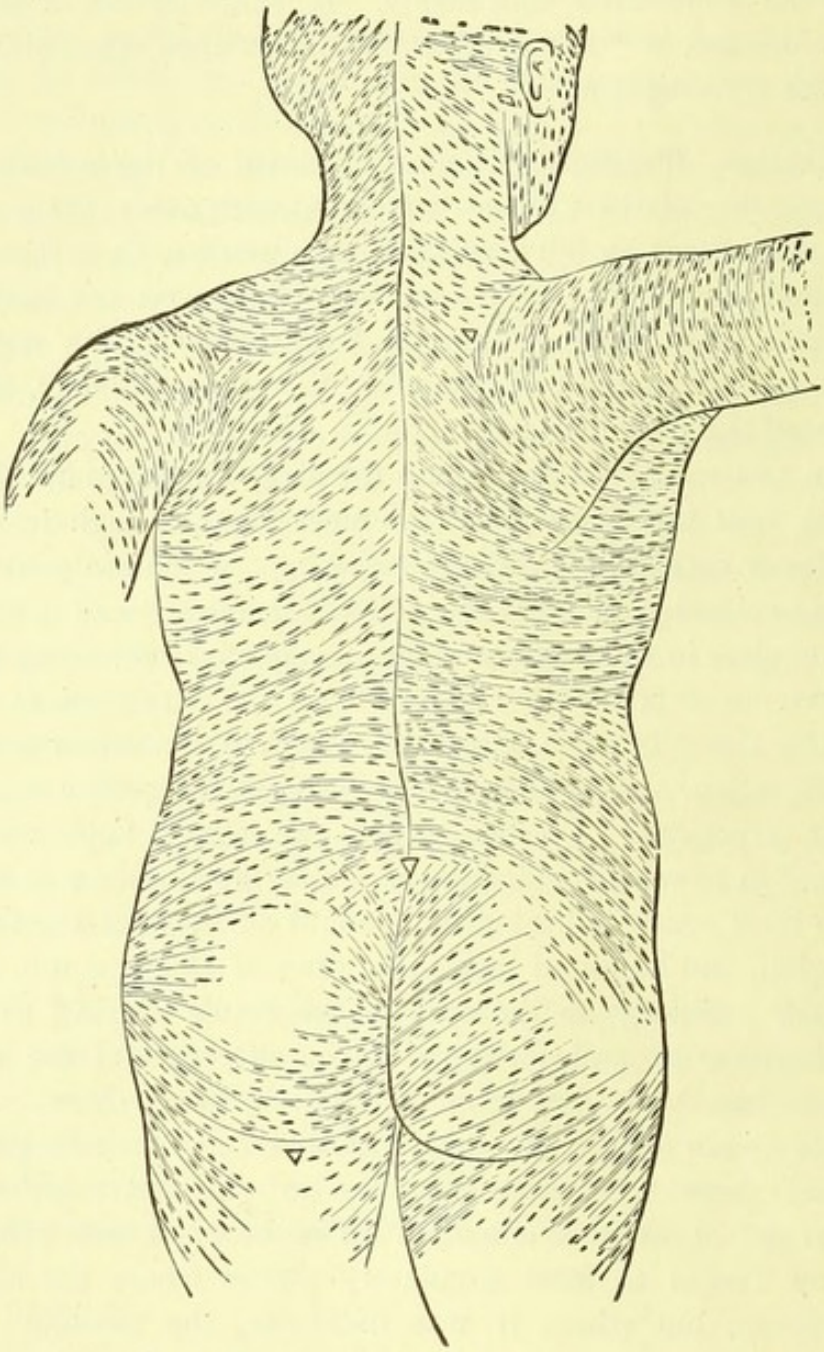

Fig. 9.—Diagram of the lines of cleavage of the skin (Langer).

to correspond in many respects with the arrangement of the groups of individual lesions. These may take various forms, 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.

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, but 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 general quantity and arrangement of the eruption, the shape and size of the patches, and the relations of the individual lesions to each other; their aggregation or otherwise, and the duration of the 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, polymorphic erythema, 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 unfrequently 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 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, 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.

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 with the occurrence of warmer weather urticaria papulosa, which had been quiescent in the cold weather, begins 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 eczema, ichthyosis, and many other inflammatory diseases; while chilblains, pruritus hyemalis, 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 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 lichen circinatus.

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 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; 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 this last 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.

FAMILY CONSTITUTIONAL CONDITIONS.

*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 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 atrophoderma, or 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.

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

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.*, in lupus erythematosus, which is much more common in women, and epithelioma, which 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, 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 congenital. In the second year begins atrophoderma 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 is rare in children, while pediculi capitis is almost universal among the children of the poor. Lupus vulgaris nearly always begins in

childhood; lupus erythematosus rarely begins before the patient is grown up; impetigo contagiosa is more common in childhood, but only 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 heading; 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 as 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.

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.

Pregnancy.—In connection with this state may be noticed the so-called herpes gestationis (see Hydroa). 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.

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 generalized form in an adult is almost invariably associated with chronic jaundice. Severe pruritus is common, and urticaria not unfrequent, 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 and, as a consequence of scratching, ecthyma, and eczema in a few instances, are most directly associated, chiefly with the granular contracted kidney, in which the general lowering of vitality has

at least as much to do with it as the albuminuria. Thibierge,* in his paper on the subject, could not make much more out of it, and quotes forty-four cases of M. Augagneur, who, in forty-three cases where albuminuria and cutaneous disease were associated, found such diseases as impetigo, scabies, lymphangitis, and ecthyma in thirty-six, and in the other seven were boils, ulcers, gangrene, and eczema, and few would assign any etiological connection with at least the first three dozen. It is otherwise with 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.

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

* "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.

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

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

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, 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.

* "Lesions of the Nervous System etiologically related to Cutaneous Disease," *Brain*, vol. vii. (1884), p. 345, 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 Ziemssenn's Handbook, p. 124. Schwimmer's *Neuropathischen Dermatonosen*, also, is an excellent monograph.

PATHOLOGY.

The pathology of diseases of the skin follows the same laws as those of other tissues, modified by the special differences in the normal anatomy of the skin from other structures. 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 with these the disease has been reproduced, that it can be considered proved that they are the true morbific agents, although the suspicion may be very strong on other grounds.

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 follicle; 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 realized 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, at the most, 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 wide-spread 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., attend 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 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, tubercle, 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, neoplasm, 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 then, may 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, and 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 obvious 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. The question of

Alcohol is one on which most 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.

The form in which alcohol should be given, if at all, is generally that 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, while 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, or in what one may call a local manner; or it may act as a stimulant on the vaso-motor and perhaps the trophic centres.

Physiological experiments made by Drs. 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.

Another disease in which it is of great service is in chronic cases of lichen ruber planus, or acuminatus; here too its action is probably chiefly on the epithelial layers.

Its action through the vaso-motor centres 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 potassæ arsenitis, or Fowler's solution, and arsenious acid. The other preparations, such as the liquor sodæ arseniatis, liquor arsenici chloridi, 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. i. ext. lupuli 3i; 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.

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, 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

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

avoided, as I have seen a limited eczema spread widely under its administration.

Phosphorus has had advocates in the treatment of psoriasis, eczema, and lupus erythematosus. It may be given in 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 complicated 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 and its derivatives, sodium and ammonium sulphoichthyolate, contain a considerable proportion of sulphur, and as both external and internal remedies, have been highly extolled by Unna, Kussner, etc., in many forms of skin disease. Unna even claimed to have cured a case of leprosy by the internal administration of the sodium salt, though he now prefers the ammonium salt. I have tried the sodium salt in a few cases of leprosy, but with no benefit; and in doses above five grains it produced nausea and vomiting. Locally, ichthyol itself is of some use in shortening the course of acne pustules, but it is too disagreeable in smell to be of extensive service, and is not better than many less unpleasant external applications. Unna classes it as an internal remedy, as a reducing agent, along with pyrogallol and chrysarobin. The last had advocates for awhile in psoriasis, but is not of much use.

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."

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.

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, Pulna, Æsculap, Hunyadi Janos, and Radocsky, "Victoria" Offner,

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 Harrowgate and Strathpfeffer, 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.

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

Baths stand first as cleansing agents, to remove scales, crusts, 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 tar and sulphur baths 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

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

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. Soft soap and spirit 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 applied so transitorily as a rule, 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 neutralization of the alkali; and Kirsten's "Mollin" is a soft soap, containing 17 per cent. excess of fat (suet and cocoanut oil), and with the potash a little soda and 3 per cent. of glycerine.

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 never now 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; and finally, Shoemaker and others assert that its penetrating powers through the tissues is very inferior to 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. Ointments are of five classes—soothing, astringent, antiseptic, stimulating, and 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, ammoniochloride of mercury, salicylic acid, carbolic acid, etc. Where there is active inflammation, weak ointments, continuously applied, answer best.

Stimulating ointments are numerous, 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, and 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. Combined with lime-water, it forms the well-known Carron oil, useful for burns and superficial inflammation; and to this the addition of calamine and oxide of zinc constitutes calamine liniment, which is a highly valuable preparation, and is best applied by dipping bandages into it and wrapping the affected part up, and 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. Chaulmogra 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 useful parasiticide. They are chiefly used in active inflammations.

Stimulating 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 and 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, French chalk, fuller's earth, iris root, talc, and pasma (oleate of starch), 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. 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 compounds, with sodium, potassium, and calcium, 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.

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 acid; 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 acid are used for warts and corns; salicylic acid is a very valuable keratolytic, in the form of plaster or paste, to remove thickened epidermis. Chloride of zinc is very valuable, 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 valuable superficial caustics, and are used for chancres, post-mortem warts, and lupus vulgaris and erythematosus. Other agents are in occasional use.

Special Media.—Of late years special media have been introduced, especially by Unna of Hamburg, for the application of medicaments to the skin; his ointment-muslin bandages have already been alluded to. Salicylic acid is the most valuable of his plasters, with or without creasote, the latter being used for lupus. The others he uses most are those of mercury and carbolic acid, for boils and other phlegmonous inflammations, resorcin for severe acne vulgaris and rosacea, the zinc oxide, and as a substitute for inunction in syphilis, mercury plaster. They are prepared of different strengths, and are obtainable in this country. He has also recommended, instead of ointments, pastes made with kaolin and vaseline or glycerine in equal parts, with oils such as olive, almond, or linseed, two to one of kaolin. Oxide of zinc and other drugs may be added. Lead pastes, starch pastes, and gum pastes are also recommended. They are of limited application, as they must be freshly made, and to obtain the best results Hardaway found that the physician must himself see to their application, as in the patient's hands they were not easily manageable. Valentine Knagg's emulsions are of similar character, and consist of soft paraffin ʒj, gum arabic gr. 160, water ʒij, rubbed up into an emulsion, and any drug required added.

Pick of Prague has employed gelatine, with a little glycerine as a medium for applying chrysarobin, pyrogallic acid, etc., and so avoiding staining the clothes; and also salicylic acid and other

medicaments. 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.

Oleates.—The employment of metallic oxides and alkaloids dissolved in oleic acid was first used by J. Marshall, the oleate 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 diachlyon 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* for scraping lupus vulgaris; *the multiple scarifier* of Squire, Viehl, and Pick, etc., for lupus erythematosus; *various implements with a central hole*, for facilitating the removal of comedones, and *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 Faradaic current have found but small employment hitherto in dermatology.

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 technia*, 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, however, 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 farther, 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.
,, pernio	,,
,, intertrigo	,,
,, fugax	,,
,, roseola	,,
,, scarlatiniforme	,,

Class II.: Exudationes—Inflammations.

	Most prominent primary lesion.
Erythema exudativum multiforme	Erythema.
,, ,, iris	Erythema and vesicles.
,, ,, nodosum	Erythema.
Peliosis rheumatica	Erythema and hæmorrhages.
Pellagra	Erythema.
Acrodynia	,,
Urticaria	Wheals.
Eczema	Multiform lesions.
Impetigo contagiosa	Vesicles and pustules.
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, with large scales.
,, rosea	Patches, with fine scales.
Lichen ruber	Papules, flat or acuminate.
,, scrofulosus	,, minute convex.
,, pilaris	,, follicular.
,, circinatus	,, in circles.
Prurigo	,, lenticular.
Furunculus	Phlegmonous.
Carbunculus	,,
Conglomerative pustular folliculitis	Aggregated pustules.
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.
Scleroderma	Corium.
Sclerema neonatorum	,,
Œdema neonatorum	,,
Elephantiasis	The whole skin.
Chloasma	Pigmentary.
Lentigo	,,
Nævus Pigmentosus	,,

Class V.: Atrophiæ—Atrophies.

	Parts affected.
Albinism	Pigmentary.
Leucoderma	,,
Atrophoderma pigmentosum	Corium.
,, albidum	,,
,, senilis	,,
,, striatum et maculatum	,,
,, neuriticum	,,
Perforating ulcer	,,
Ainhum	,,

Class VI.: Neoplasmata—New Growths.

Molluscum contagiosum	Degenerative.
Colloid	Degenerative.
Xanthoma	Degenerative.
Lupus vulgaris	Infiltrating.
,, erythematosus	Infiltrating.
Scrofuloderma	Infiltrating.
Tuberculosis	Infiltrating.
Syphilis	Infiltrating.
Lepra	Infiltrating.
Rhinoscleroma	Infiltrating.
Keloid	Benign.
Fibroma	Benign.
Myoma	Benign.
Neuroma	Benign.
Nævus vascularis	Benign.
Telangiectasis	Benign.
Lymphangiectodes	Benign.
Lymphangioma tuberosum multiplex	Benign.

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

Carcinoma	Malignant.
Paget's disease	
Epithelioma	
Rodent ulcer	
Sarcoma	
Mycosis fungoides	
Yaws	
Verruga Peruana	
Furunculus orientalis	

CLASS VII.: NEUROSES—SENSORY DISEASES.

Hyperæsthesia	
Dermatalgia	
Pruritus	
Anæsthesia	

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

A. SWEAT GLANDS:—

Hyperidrosis	Excessive secretion.
Bromidrosis	Altered quality.
Chromidrosis	
Phosphorescent sweat	
Uridrosis	
Anidrosis	Secretion.
Miliaria crystallina (sudamina)	Retained secretion.
,, vesiculosa	Inflammation.
,, papulosa	,,

B. SEBACEOUS GLANDS:—

Seborrhœa	Excessive secretion.
Sebaceous cysts	Retention.
Milium	,,
Comedones	,,
Acne vulgaris	Inflammation.
,, rosacea	,,
,, varioliformis	,,

C. HAIR FOLLICLES:—

Hirsuties	Excessive growth.
Atrophy	Defective ,,
Alopecia	Baldness.
,, areata	,, in patches.
Concretiones	Growths on the hair-shaft.
Sycosis	Inflammation.
Dermatitis papillaris capillitii	,,

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

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.: PARASITICÆ—PARASITES.

		Part affected.
A. VEGETABLE:—		
Favus		Hair and skin.
Tinea trichophytina	tonsurans	Hair.
	circinata	Skin.
	barbæ	Hair.
,, imbricata		Skin.
,, versicolor		,,
Erythrasma		,,
Pinta		,,
Fungous foot of India		Skin and deeper tissues.
B. ANIMAL:—		
Scabies		Acarus.
Demodex folliculorum		,,
Pediculosis	capitis, corporis, pubis	Insect.
Dracunculus modinensis		Filaria, or thread-worms.
Filaria sanguinus hominis		
Cysticerrus 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 to either 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 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.

ERYTHEMA.

Deriv.—*Ἐρύθημα*, a blush.

Synonyms.—Rose rash; *Fr.*, Erythème; *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 be always borne in mind that the line between hyperæmia and inflammation is a narrow one, and many of the affections which are here classed under hyperæmia 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.

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. 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.
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, and arsenic, mercurial inunction, etc.

Erythema Pernio. *Deriv.* — *Πτέρνα*, the heel. *Synonyms.* — Pernio; Chilblain.

Symptoms.—People with a feeble circulation, 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 winter; moreover, it is not attended with the itching and burning

of chilblains, and there is inflammatory infiltration, 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.

When they are present, 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 liniment belladonna 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., spread upon lint, or wet boracic lint covered with oiled silk; with, above all, rest and general warmth, are necessary. Many other methods have their advocates, but any of the above are amply sufficient to remove 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 affects the prepuce or vulva, and under the breasts in women. In infants it is most frequent about the buttocks, and there is no doubt that the irritation of the wet napkin, whether from urine or diarrhœa, 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 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 determiue 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; good applications are oxide of zinc, one part to three of starch, or one part of oleate of zinc to three of kaolin, finely pulverized; "pasma," and powdered boracic acid diluted with kaolin, are 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 wet 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 bedsore; 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, beriberi, etc., and such diseases as pellagra, but the eruptions in most of them are 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.—These are the early eruptions of patchy erythema, which precede or accompany the onset of the more characteristic eruption of vaccinia, variola, syphilis, or which are occasionally associated with cholera, diphtheria, and malaria; the last is sometimes called R. febrilis. As it is thus but a part of these diseases it does not require a separate description.

Diagnosis.—The gravity of these rosy erythemata consists solely in their being liable to be mistaken for one of the exanthemata, especially *scarlet fever* and *measles*. It differs from these in the absence of the special prodromal symptoms of these diseases, such as the sore throat of scarlet fever, the catarrh of measles, in the rash not occurring at any definite date after the onset of the first symptoms, in the transitory character of the febrile symptoms, which do not bear any relation to the amount of eruption, in its not being contagious, and not of epidemic origin. The eruption differs from measles in not being especially crescentic, not coming out first in the face or any special part, and its being irregular in its form and arrangement.

Treatment.—As idiopathic roseola always gets well of itself in a few days, and the cause is frequently unknown, the indications for treatment are neither numerous nor important; all that is necessary

is to remove any source of irritation in the alimentary canal by mild aperients, to examine the gums if the disease occurs in the course of dentition, and perhaps to lance them, and to guard the patient from cold. The diet should be simple and of a liquid form as long as there are any febrile symptoms. Closely allied to E. Roseola is—

Erythema Scarlatiniforme. Under certain circumstances a widespread or general eruption comes out, 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 moreover it is common to find the eruption sharply defined in places, especially beside the nose, leaving a narrow tract of, by contrast, preternaturally white skin between the two hyperæmic areas. This is never the case in scarlatina. Like the 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 somewhat red; 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 more or less copious desquamation, according to the intensity of the erythema.

Etiology.—This is not always apparent. It is seen occasionally* in septicæmic conditions, as after surgical operations, but not so frequently since antiseptic precautions have been generally adopted; where pus is shut up in a cavity, *e.g.*, abscesses; † tubercular peritonitis and empyema; preceding or in the course ‡ of enteric fever in puerperal women, and in children in the course of ague. It has been observed in a case with artificial anus, where auto-intoxication of ptomaines was reasonably probable (Lépine and Molière). I have also seen it in connection with sewer-gas poisoning, with an ulcerated throat, commencing on a level with the nipples, and sharply defined there, and spreading nearly all over the body. A precisely similar rash occurs after certain drugs, especially copaiba, quinine, belladonna, and salicylic acid, etc. In these

* *Brit. Med. Jour.*, vol. ii., 1878, and vol. i., 1879.

† U. C. H., an adult female under the care of Dr. Ringer.

‡ Whipham's cases, *Clin. Soc. Trans.*, vol. xvi., p. 150, with references to many cases.

cases the rash is probably due to irritation of the alimentary canal acting reflexly on the vaso-motor centre.

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 erythema 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.

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.

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 the 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 or layers for its chief point of attack, or affect them all, or take only the superficial or the deep layers. Thus, in psoriasis, the most conspicuous changes are in the rete; in eczema, in the papillary layer; in carbuncle, in the deeper layers, though, as in eczema, all layers may eventually be affected; 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.—Acute inflammatory diseases characterized 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, and gastric disturbances; and this, with a temperature of 100° to 104°, 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, trunk, and rest of the limbs, and it is especially abundant round the most painful joints. The temperature usually falls upon the outbreak of the eruption, though it may keep above the normal for some days.

The extent of distribution of the eruption is very variable, for whilst it may be general, including even 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 eruption often being more developed, or coming out earlier, upon one side than another.

* *Literature of Erythema.*—Lewin, *Berlin Klin. Wochensch.*, No. 23, 1876, and *Charite 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, *Neuropathischen Dermatonosen*, p. 101.

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 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, and joining similar adjacent lesions, 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 coming out in crops, the eruption of E. papulatum will come out suddenly and extensively.

Duration.—The duration for all forms appears to be usually

rom two to four weeks, but many cases by a close succession of ttacks go on for a much longer period. Colcott Fox* records two ases in which a brother and sister had never been quite free from E. gyratum for sixteen years, the disease commencing in early hildhood, and they had severe attacks every three months, with a constant succession of minor ones.

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

Erythema or Herpes Iris. Herpes iris is almost as closely allied o E. annulare as E. marginatum is to E. gyratum, which has al-eady 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, vesi-cation 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, 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 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

* *Clin. Soc. Trans.*, vol. xiv., p. 67.

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 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 membrane, 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 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

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

† Elizabeth M., out-patient, U.C.H.

‡ U.C.H., out-patient Elizabeth J., æt. forty-one, seventh attack; the mucous

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 vesiculeux bulleux 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 the 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.*, Érythème noueux) is a disease of childhood and adolescence, being rare after twenty; and is seen twice as often in girls as in boys.

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, a furred tongue, and general malaise; but these symptoms, with the excep-

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.

tion of the articular pains, may be quite absent. There is pain and tenderness over both tibiæ, and in a day or two from the onset roundish or oval symmetrical node-like swellings appear, with the long axis vertical over the tibiæ. They come out two and three at a time, but are 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, by the appearance of fresh lesions, may go on for two or three weeks.

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. 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 connection between tuberculosis and E. nodosum.

Etiology. 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.

Sex.—The preponderance of evidence is in favour of all forms

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

† "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.

eing more common in the female sex, though Hebra said it was ıost frequent in males. S. Mackenzie found five females to one ıale in E. nodosum.

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

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

Further, mercurial inunction would always produce E. iris in ne of Kaposi's patients.*

Nevertheless, such instances are exceptional. Though unable to et definite proof, I am strongly of opinion that sudden alternations f temperature, especially chills after having been over-heated, are requent determining influences, and that the rheumatic and gouty re more likely to be influenced by it. Lewin and Kaposi agree hat irritation of the urethra, *e.g.*, from gonorrhœa or instrumental rosions, is another excitant, and Duhring thinks that irritating ngesta may produce it; but these cases are more probably urti- arial. In a large number of cases no irritating or exciting cause an be discovered.

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

* Kaposi, p. 294, 2nd ed.

Pathology.—That all these affections are not merely 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 tubercle; 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.

Lewin,* Auspitz, and Schwimmer† consider that this 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

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

† Schwimmer, *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.

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 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 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

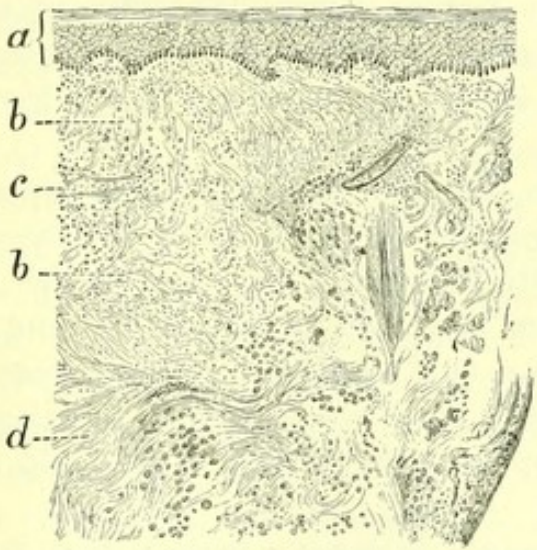

Fig. 10.—Erythema Tuberculatum from the side of the neck, × 125.

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.

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.

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.

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 case the antecedent pains would have been severe, and the other symptoms of syphilis well marked, as it would never occur in a slight case.

In the case of 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, the slow development and the absence of redness till late would be noted, 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 aqua ℥j; or lactate of lead applied on lint.

In E. nodosum, rest with the legs elevated should be strictly enjoined; one of the last two lotions applied warm, is usually the most grateful to the patient. A saline aperient should be given at first, followed by iron. If there are febrile symptoms the diet should be restricted to liquid nourishment for a few days. However marked the fluctuation may be, the nodes should not be opened, as absorption invariably takes place. In older people, iron with

sulphate of magnesia, or decoction of aloes, will suit a considerable proportion, but no routine treatment can be laid down.

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, 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, the elbows and wrists frequently, the trunk rarely, involved. 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; and 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.

* *Deutches Archiv. für Klinische Medicine*, bd. xiv., p. 406; Schwartz on two cases of P. rheumatica with acute aortic insufficiency, in Kaposi's *Clinique*.

Etiology.—Women are more frequently attacked than men ; it is most common between twenty and thirty, and it may undoubtedly 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 vasomotor 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 the rheumatic fever, 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

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

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.—Pelle (Italian), skin; *agra*, 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, Venetia, and Æmilia; to the south-west of France, Roumania, and Corfu; all the affected districts lying 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, 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 affected at first and chiefly, in the parts exposed to the sun, viz., the backs of the hands and forearms, the face and neck in women whose faces are much exposed, and, when the person goes barefooted, the feet also, and occasionally the back and chest. It consists of diffuse, bright, dark or livid red or coffee-coloured patches of erythema, which disappear on pressure, and soon become dark in the centre, and desquamate. There are numerous epithelides also, petechiæ are common, and sometimes numerous small bullæ appear and leave bluish stains behind, while the skin is swollen, tense or burning, and itching, especially in the sun.

After lasting up to July or August, the symptoms decline, leaving

* *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 Lambroso are most important.

the skin discoloured, rough, and dry for some time longer, and in the winter, the patient seems quite well, 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, 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 extends all over the body, the colour becomes darker, and the skin thickens and cracks, 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, which in the young often takes a special form, in which the body and organs of generation are defectively developed, while the mental powers are precocious and active; or the insanity may be a melancholia, with tendency to suicide by drowning, all pellagrous patients liking to see and touch water; or the patient may sink into utter imbecility.

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.—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 Lambroso's experiments show, a fatty oil (maize oil) and an extractive "pellagrozein" are produced, and the administration of these to men and animals excited 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 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. Leudet believes that there is a pseudo-pellagra connected with poverty, but if so the disease ought to be universal.

Pathology.—Lambroso 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;
3. Fatty degeneration of various organs;
4. Pigmentary changes, which are especially characteristic.

Dejérine found parenchymatous neuritis of the cutaneous nerves.

Diagnosis.—This would turn on the position of the patient, exposing him to the influence of diseased maize or other cereal, the occurrence of the eruption chiefly on exposed parts, consisting of diffused deep red erythema, and the peculiar mental and bodily symptoms.

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.—Lambroso 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 useful 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, are beneficial.

Acrodynia* is a disease closely allied to pellagra and ergotism, which occurred first in Paris and some other French towns as an extensive epidemic in 1827 to 1829, and has since been observed

* Hirsch, *loc. cit.*, vol. ii., p. 248, contains the best account, of which the above is an abstract.

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.

Symptoms.—The symptoms are those of gastro-intestinal irritation, redness of conjunctiva, œdema of face, soon followed by formication, and pricking pains in the palms and soles, with a burning sensation, with, at first, hyperæsthesia of those parts, especially the feet, and, later on, anæsthesia; then an erythematous eruption breaks out, chiefly on the hands and feet, but it may spread over the limbs and parts of the trunk, followed by dark brown or black pigmentation, greatest in the warm regions of the body. In severe cases there may be cramps, pareses, toxic spasms, the limbs waste and become œdematous. There is no fever, and it is seldom fatal except in the old and feeble, and 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.*, Nesselsuch; Nesselauschlag.

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. 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 is 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 covering more or less completely the whole body, including the mucous membrane of the mouth, tongue, and pharynx, and inferably other mucosæ, such as that 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.

Variations.—Most of the sub-varieties depend on the size, contents, and duration of the wheals, and a few on other considerations. 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. 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. 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.

In a case of Morrant Baker's, which I had an opportunity of

* 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. 206.

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. 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 and hæmorrhagica, there was hæmorrhage from the bowels, kidneys, and urinary passages, and much uric acid in the urine.

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, 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. Letters can be inscribed with the finger nails or a pointed instrument, and in a few minutes the white letters with pink borders stand out in bold relief on the skin; this condition 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 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 Willan. 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 enquired for. If they should happen to be present, they are often pink instead of white, and may be very

small or of the ordinary size, 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.

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, etc., some caterpillars crawling over the skin, 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; rupture of an hydatid into the abdominal cavity produced violent 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, Deborge thinks from absorption of some of the fluid into the circulation. 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; or after having the sound passed. Leeches to the os, 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 with quinine. It is often difficult to ascertain the original cause, especially in U. chronica, as it may date far back, but have left 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, which 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 serous 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 also found a local œdema and ischæmia in a wheal produced on a rabbit with a stinging-nettle. Unna has also 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 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 enquiry 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* might easily be mistaken for it;

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

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 the 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 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 and colchicum, 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 atrophia, $\frac{1}{150}$ grain cautiously increased may be daily injected subcutaneously.

In some of these apparently causeless cases a steady course of arsenic in full doses, and 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.

Local treatment is very important; the irritation of the nails and scratching have 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). Dredging 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 ʒviij; terebene ʒj to ʒviij; sanitas and water equal parts; salicylic acid made soluble with glycerine and borax ʒij to ʒviij; benzoic acid in saturated solution; carbolic acid ʒj or ʒij to ʒviij; evaporating lotions of spirit and water; or spirit and lead lotion (Antipruritic Lotions, F. 20 to 37); 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.

URTICARIA PIGMENTOSA* (SANGSTER).

Synonym.—Xanthelasmoidea (Fox).

The eruption differs from ordinary urticaria in the main lesions being permanent instead of transitory, and in the presence of pigmentation in them.

The first case on record is Nettleship's, and there have been between twenty and thirty cases recorded since, three of which were under my care. There are two classes of cases, the pruritic and non-pruritic. The first is the most common; Fox's and my own first case were of the second variety.

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 tubercles 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 in form, they resemble a wheal, in colour, they approach a xanthoma tubercle, 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, tubercles 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 a pale or deep fawn in the

* *Literature.—Brit. Med. Jour.*, Sept. 8th, 1869; *Clin. Soc. Trans.*, vol. xviii., 1885 (case by the author, with analysis of previous cases and coloured plate). Colcott Fox's essay in *Med. Chir. Trans.*, vol. lxvi., 1883, p. 329, gives abstracts of all cases up to date and microscopical diagrams.

older formation. When once the tubercles 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 tubercle. Other tubercles may, after a variable time, shrink and become soft, wrinkled, and ultimately disappear, leaving brownish pigmentation. In my third case, there was pigmentation only, and no permanent elevations.

Itching, often severe, usually precedes and may accompany the formation of the tubercles, and with this ordinary wheals appear, and factitious urticaria is common; rubbing will also lead to enlargement of older and apparently quiescent tubercles, and ecthyma may appear as another consequence of scratching. In some of these cases the wheals and the bullæ preceded the tubercles, but it is probable that the bullæ do not form independently of wheals or tubercles.

In non-pruritic cases all these secondary lesions are absent. After a variable period, always several years, fresh tubercles 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 tubercles were still making their appearance at eighteen years of age.

Wallace Beatty's† cases, of two brothers æt. twelve and fifteen years respectively, while resembling U. pigmentosa to some extent, differed in the following respects. (1) "It commenced several years after birth. (2) The spots were at first papular, and rapidly flattened, and were not in the form of tubercles or nodules and localized infiltrations. (3) They ultimately left *white* spots, some level with the skin, smooth or foveated, or with radiating wrinkles appearing like scars." This description suggests to my mind maculæ atrophicæ, like those described by Liveing.

Etiology.—Of twenty-four cases in which the sex is recorded, seventeen were boys and seven girls. 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 under six months. This very early commencement suggests some congenital predisposition, but beyond this we cannot go.

* Virchow's *Archiv.*, bd. 88, 1882.

† *Brit. Med. Jour.*, April 4th, 1884.

Pathology and Anatomy.—Microscopical examinations of the tubercles have been made by Thin* from a case of Morrant Baker's, Hoggan, Pick† of Prague, Colcott Fox from Tilbury Fox's most severe case, and by Unna. Thin came to the conclusion that the structure was indistinguishable from lupus. Pick found hæmorrhages in the skin surrounded by small cell infiltration, while Colcott Fox and Unna described it as a typical wheal, plus some cell-infiltration, free œdema, and small hæmorrhages. Unna considers the lesion more superficial than an ordinary wheal. These observations are probably less conflicting than they appear at first sight, and seem to me, to represent a lesion affecting the upper part of the corium, the result of hyperæmia, œdema, small hæmorrhages, and a variable amount of cell-infiltration, the last very great in Thin's observations, slight in the other three. These conditions well represent a wheal made permanent by cell and blood exudation.

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 tubercles generally associated with ordinary wheals, and always commencing in early infancy, are quite distinctive. 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 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.

* *Clin. Soc. Trans.*, vol. x., 1877.

† *Prager Zeitschrift für Heilkunde* (1881).

‡ Abs. in *Viertlj. für Derm. u. Syph.*, vol. xiii., 1886, p. 72.

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 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 surface of the thighs, the forearms, the thorax back and front, the sacral region and buttocks, the lower part of the 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

* 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.

e papules are moderate in number, or, as occasionally hap-ns, limited to the lower extremities, it constitutes the **P. mitis** Willan; but when it attains to the intensity of **P. ferox,** e papules and scales are more abundant and larger, the legs d forearms feel like very coarse brown paper, which is a very aracteristic symptom, and secondary lesions are so invariably esent, though not without intermission, as to be essential parts its symptomatology.

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

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

Etiology.—It affects both sexes, but males more often than males according to Hebra; it is essentially, though not exclu-vely, a disease of the poor, want of food and bad hygiene being e most important factors; and, according to Hebra, it is aggra-ated by cold weather. This, however, is contrary to my experi-nce; all my severe cases were better in winter, while of the mild ases two were worse in summer and three in winter. As regards ge it begins usually in the first year of life,—in several of my ases it dated from three months old,—and apparently begins as n urticaria papulosa or lichen urticatus. At the beginning of the econd year, according to Riehl, small wheals appear together ith the larger wheals, and it shows its predilection for the special egions already mentioned; but it is not until the end of the second the fifth year that the disease is fully developed, the papules ncreasing in number more and more, while the larger wheals ecrease. Thenceforth, unless vigorously and persistently treated t once, it persists through life, though with marked occasional emissions, either in warm weather or cold weather, according to heir 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 all quarters, and would go far to prove that it was a neurosis to which all the eruptive phenomena were secondary.

Anatomy.—Anatomical examination* of the skin shows that there is primarily an exudation, doubtless inflammatory, of leucocytes and serum into and over the papillary body, infiltrating and raising the epidermis into a papule. This may be all at first, but 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 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 acuminatus, 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.

Changes in the nerves probably occur, but have not been demonstrated. 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 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

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

milarity would vanish upon removing it; moreover, there would e comparatively long intervals of freedom from the eczematous ondition.

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

Prognosis.—This depends upon the age of the patient and the uration of the disease. It is curable only in early life; afterwards here may be remissions, and by treatment the patient's sufferings ay be alleviated, and the lesions so much reduced that delusive opes of a cure are entertained; but it invariably returns. The ases of the greatest severity are probably incurable from the first.

Treatment.—The indications are to relieve the itching, to remove he eruptions, both primary and secondary, and to improve the general ealth. To fulfil the first two indications, external remedies must e chiefly relied upon, and applications which produce softening nd removal of the uppermost layers of the cuticle are, according o Hebra, the most effectual; but internal remedies may afford ome relief to the itching. Improved hygiene, especially a liberal ietary, cod-liver oil, and iron, are the most effectual means to estore and maintain the general health, but it is astonishing how uch temporary benefit, both to the lesions and the comfort of the atient, is sometimes produced by merely keeping the patient in ed, and giving a liberal diet.

I have found, also, that the tincture of cannabis indica, given nternally, exercises a marked influence over the itching, mitigating considerably; it must, however, be given in full doses; *e.g.*, for child of eight or ten I begin with ten minims, and increase it up o even thirty minims, three times a day, directly after meals, llowing an interval of a fortnight in its administration about every ix weeks. When taken in these large doses for a long period t may produce dulness of intellect and loss of memory, effects which, however, soon pass off when the drug is suspended. Any czema or ecthyma that may be present having been first removed y the usual means, I have found the following course of treatment ffectual 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 water at 90°, 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 treatment 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 rubbed well with the solution, then take a warm bath for an hour, and afterwards a cold showerbath.

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, also, it is 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.

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.*, Eczem, Eczema ; *Ger.*, Fetter.

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

This is the most common of all eruptions, and constitutes at least a third 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

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

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*. 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 hand, 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 again into the pustular, 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 the most common, and in one sense the most representative 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.

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. 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, the hyperæmia and other symptoms may 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 there are pustules instead of vesicles, 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 that 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 beneath. As the inflammation subsides, the pus 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 on the extensor aspect of the limbs and on 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

* Besides this, other qualifying terms were used by Willan and his immediate followers, such as I. 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.

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 are evident and numerous the lichen was said to be inflamed, and it was called **lichen agrius.** When the papules are 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 disused, 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 is the usual feature 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, 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 bad as ever, and this may go on for weeks, months, or even years. In other cases, again, it begins to ooze with formation of vesicles, and discharges like the usual 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, and it lapses into E. squamosum.

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 to 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 very marked thickening is felt when the patch is pinched up; 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.** 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 in 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,**" and the hardness is almost board-like. 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.**"

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 secretion drying, and entangling in the hair, forms 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 part to get well, and showing a great tendency to recur, even without apparent provocation. "**Eczema genitalium**," eczema of the scrotum and vulva, often begins as in 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; and 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; owing also 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 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 abcesses 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 analyzing 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 6 years and 12 months; 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 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.

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, 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 be almost interminable.

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 ndividual'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

* 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.

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, temperature, and mechanical irritants. 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 *temperature* 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, and it is especially injurious when combined with wet, and when the parts exposed are allowed to dry spontaneously, as exemplified in washerwomen, barmaids, and the excessive use of water in the form of baths, as in hydropathy, mineral spring cures, etc.

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 French authors* lay great stress upon what they call the dartrous diathesis, to which they refer eczema and several other cutaneous diseases, but with the exception of Mr. Jonathan Hutchinson these views meet with but little acceptance out of France, and need not be discussed at any length. That there are certain skins in which eczema is much more easily excited than in others few would deny. T. Fox thought that the eczematous skin was irritable and dry; that dryness favours the occurrence of

* 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.*

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. 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, and 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.

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 irritates 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 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 a cause of eczema, which is also not infrequent in chlorotic girls.

* *Brit Med. Jour.*, July 24th, 1880.

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. But the following case is an example. A man æt. sixty, who had been subject to eczema, but was in perfect health at the time that 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. The skin gets into a bad habit, so to speak, and the disease will go on indefinitely, unless judiciously and perseveringly treated. It is no uncommon history to find a child in its 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 vasomotor 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.

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

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

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

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

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

Chronic Eczema Rubrum.—Robinson says the previously described hanges in the corium are here more marked and deeper, and the rete in the owest layers is so altered that the lower border is badly defined from the orium. The rete cells are separated and mixed with round cells from the essels and with proliferated rete cells, while the upper border is very irregular, rom the loss of the horny layer, of which, at most, there are only fragments onsisting of nucleated cells. In chronic eczema squamosum there is proiferation and desquamation of the horny layer, while the rete is unchanged, he corium and papillæ are infiltrated with round cells, the vessels are dilated, nd, 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 hanges, as exemplified in figs. 11 and 12, representing E. palmare. The

* *Giornale Italiano delle Maladie della pelle*, June number, 1878

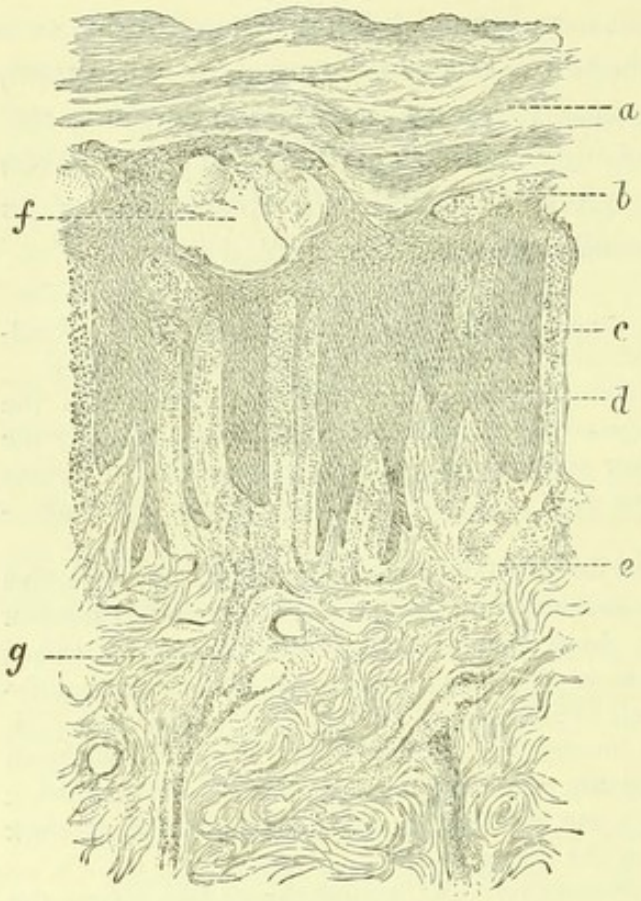

Fig. 11.

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.

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 and tinea favosa of the scalp, sycosis menti, and pustular syphilis of scalp; the papular for lichen ruber, papular urticaria, and papular syphilide; 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 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

* Robinson, p. 318.

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

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 out 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. Often, however, the eczema inflammation can be shown to be more superficial. 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; some at least will be cupped-shaped, and may lead to 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 eruption is almost limited to the occipital region; at the most a few isolated scabbed spots exist in the other part 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. See that disease.

Papular Urticaria. Eczema lesions are not unfrequently 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 scabbed-topped papules are chiefly distributed on the loins of a child, wheals should be always inquired for.

Papular 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 papular 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 mistakable 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 diffused 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 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, whiskers, or palms, the prognosis is more or less unfavourable, at least for a time, though there are few indeed, that 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 neutralize any injurious influences, the great aim being to remove or guard against depressing influences 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. In chronic cases, the aloes, nux vomica, and belladonna pill (Pills, F. 1) taken for a long period is a most useful prescription coupled with all the well-known rules for meeting that condition. As temporary adjuncts the compound liquorice powder, the liquid extract of cascara sagrada, may be given, while the aperient mineral waters, such as Carlsbad, Hunyadi Janos, Æsculap, Friedrichshall, Pullna, 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 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 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 Hydr. 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. In all cases, 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, are the means best suited to combat such conditions. In all obstinate cases in adults, the urine should be examined for albumen, and sugar, and an excess of lithates or phosphates; indeed, in adults, it should be done as a matter of routine; and, 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 we have either failed to discover any particular departure from health, or where such departure has been rectified, and yet the eczema remains uncured, owing to fresh attacks at short intervals; and then we are led 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 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 advocates strongly vinum antim. tart. in small doses, about ℥v 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 flavourants, 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 was led to try to get at the vaso-motor centres of the part by applying counter-irritation over them. This proved more successful than I had hoped for, 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 umbar vertebræ. Sometimes a 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.

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.

While 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, they may all be divided into two classes—the soothing astringent and stimulating. 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.

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 is 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 patch is ready for the special medication. The medicaments comprise desiccant powders, lotions, liniments, and ointments, and they may be soothing or stimulating, or even caustic. The treatment for special positions will be considered separately. In all cases where practicable the patient's convenience should be consulted, as he will often otherwise not carry out his instructions faithfully; and besides, for many persons to give up working is to give up eating. As a rule, lotions, unless they require to be continuously applied, are more convenient than ointments. Lotions or dusting powders are generally preferable where the discharge is very profuse; ointments where it is moderate or absent; while liniments are more convenient than ointments where a large surface has to be covered. Whether soothing astringents or stimulating applications should be chosen, depends mainly upon the intensity, rather than upon the duration of the inflammation. 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. 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. Stimulant treatment is required in chronic, indolent, scaly patches, or where there is thickening and great itching.

The soothing remedies are mere emollients, such as marshmallow 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. The stimulants are generally chosen from mercurial preparations, especially the ammoniated, the yellow oxide, the nitrate or oleate, etc., or tar or its derivatives in some form.

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 places 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, permanganates of potash, etc., require painting on once, twice, or thrice a day, according to the strength and 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 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.

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. 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 boracic 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 six, 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 part of the inflammation has ceased in a part of moderate extent, and there is 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 on scaly patches and on the head. The nitrate is used generally 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.

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 ℥j of the weaker ointment, or in a lotion such as liquor plumbi subacetatis ʒj, liquor carbonis detergens and glycerini *āā* ʒij, aquam *ad* ℥viij, applied three or four times a day, or carbolic acid ♏v to ℥j with 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

ar must be painted on again. This kind of treatment is best uited for indolent patches, and the tar must be brushed in igorously. For scaly patches, without much infiltration, merely ainting on a lotion of liquor carbonis detergens and spirit in equal arts, or nitrate of silver, gr. 10 or gr. 15 to ℥j of nitrous ether, is ften sufficient, and relieves the itching, though it makes the skin ingle for a minute or two. Hebra's formula for scaly eczema f the face is a good one: acidi carbolici ʒij, glycerini, ætheris ā̄ ℥j, spirit. vini rect. ℥vj; but it must be used with caution at irst until it is seen to suit, and, like all these strong preparations, hould never be used until milder measures have been tried and he patient's confidence is gained.

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

Sulphur springs such as Harrowgate, Strathpfeffer, and Aix-la-Chapelle might be used in similar cases, but their utility is imited; internally, they may be taken in gouty and rheumatic ases. As a rule, the local use of sulphur aggravates eczema. The lkaline waters of Ems, Royat, and Vichy are more suitable than he sulphur springs as a rule. Hebra's soap treatment is very aluable for patches of old standing with great infiltration, such as re often seen about the legs and wrists. Strips of lint or linen hould be ready spread with oleate of zinc or lead ointment; then noisten a piece of flannel with water and spread a piece of soft oap as big as a walnut upon it, or dip it into the spiritus saponis lkalinus and rub it firmly for some minutes, dipping the flannel in ater occasionally, until all the scales are removed and the part s red with excoriated oozing points; then wash off the soap, dry he part rapidly, and immediately apply the ointment. The treat-ment may be repeated twice a day as long as there are any oozing ed points left after the friction. In some cases the addition of il of cade, ʒij to the ℥j of the soap liniment, is useful where there s much induration.

Beissel's of Aix-la-Chapelle treatment for chronic local eczema I have also found a good one. The crusts are thoroughly soaked n oil at bedtime and completely removed the next morning by lkaline 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.

White of Boston's treatment 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, a substance obtained by distillation from bituminous shale, and the distillate subsequently acted upon by sulphuric acid, 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 looks like tar, and has a disagreeable odour, which will always limit its use; indeed, we do not want more of such remedies, as tar fills that place so well; what is required, are remedies which do not stain nor smell, and can be used without interfering with the patient's employment.

Having given a general account of different methods of treatment, it now only remains to be shown 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 ℥j 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 oint-

ment. In a week or so, the pustular element will have ceased, 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 ʒj 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, of glycerole, of the subacetate of lead, one to four, are also good applications, always with protection against temperature changes.

E. of the Face. In infants, lead, zinc, or boracic acid ointment, 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 frustrates 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 *Blepharadenitis*, 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 constant 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 tried.

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.

E. of the Arms offers no special difficulty; soothing astringents 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 to ℥ss or to ℥j is one of the best remedies. 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 acute on the scrotum, ointments seldom succeed, except sometimes a weak boracic acid ointment. Calamine liniment, or lotion, or the lactate of lead often answer well. The itching, which is quite maddening sometimes, may be relieved by painting on the nitrate of silver solution, gr. 10 or 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; 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. Boracic acid ointment ʒss to ℥j is one of the most generally applicable, unless the discharge is very profuse, when a lead lotion of some kind is the best, 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.

E. Circumscriptum (?) Parasiticum. I venture to give this name to the form of eruption which looks like a dry eczema, but its edges are more sharply defined than E. squamosum usually is. 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 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.

Dermatitis Repens. This is a peculiar form of dermatitis, of which I have seen three instances, and as I have not found it described elsewhere, and it is most difficult to treat, I desire to call attention to it.

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

† *Wien. Med. Blatter*, 39 and 40, 1881; Abst. *Ann. de Derm. et de Syph.*, 1883, p. 142.

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 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, snipping away the undermined skin and applying first nitrate of silver to the spreading edge, and afterwards sulphate of copper. The copper seemed to have some effect; it spread more slowly, and not uniformly; it failed, however, to really stop the disease. 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 in 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, was affected, but the back of the hands were free. He got well in about three months.

M. 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.

Although the commencement in these cases was like an eczema, its subsequent course was very different; but the cases are too few to ground general statements upon, so I simply leave them on record until more cases appear.

IMPETIGO.

Deriv.—Impetire, to infest.

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.

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

* Paris correspondence *Brit. Med. Jour.*, Dec. 11th, 1886.

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 less 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 fifteen thousand children that have passed through my hands at the Children's Hospital, besides those at University College Hospital, in the last ten 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.

Symptoms.—It 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 limited to these regions, the lesions occur chiefly round the mouth, nostrils, and chin, and in the occipital region; in both 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 only a few discrete lesions on the one hand, or these with extensive patches, or it 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 is too frequent with the more typical aspect of the disease on the face for there to be any doubt that they are due to the same eruption, only altered owing to their being more exposed to friction on the limbs than they are on the face. Then, too, some cases are primarily pustular, especially in cachectic children. On the other hand, I have seen it in adults as only red, raised, irregular papules, about one-third of an inch across, extremely irritable, and scratched into an excoriation at the top, but never 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 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

Fig. 13.—Micrococci of Impetigo Contagiosa. × 550.

made in the crusts, and fungi found by Hutchinson, Kaposi, Geber, Piffard, etc., but the fungus has been almost as various as the observer. The liability of crusts 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 epithelial cells, but not in the pus cells as in fig. 13. That these or similar organisms are the contagium carriers is highly probable, but successful inoculation with the cultivated fluid is necessary for proof.

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 that Fox drew attention to.

* *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 lesions were then readily observed with an object glass magnifying 550 diameters.

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.—ἔκθύμα, a pustule.

This is still considered by some dermatologists to be a distinct disease. I am, however, convinced that it is 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 sometimes on the lower limbs, 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 enquired 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.

POMPHOLYX.

Deriv.—πομφόλυξ, a bubble.
Synonyms.—Cheiropompholyx (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 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 large 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.—In very slight cases, which are not uncommon, 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, and by myself since independently.

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

* *Pathological Transactions*, vol. xxix., 1878.

† *Archives of Dermatology*, vol. iii., no. 4, 1877.

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 almost confined to the papillary layer, and that it was of very moderate intensity.

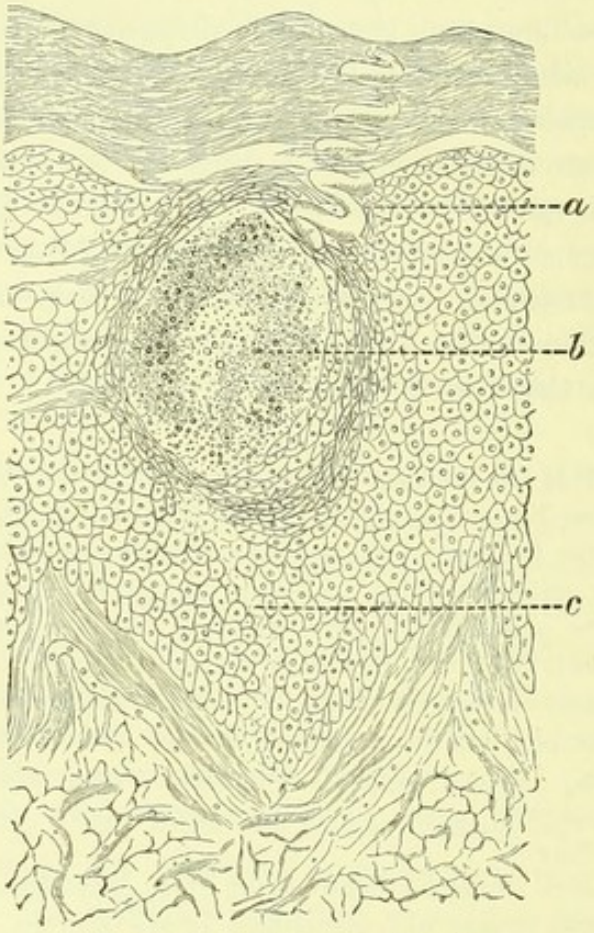

Fig. 14.—Pompholyx. × 150.

b, Vesicle formed in the inter-papillary portion of the rete directly in the course of the sweat channel *a* and *c*.

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 otherwise 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 play 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.—ἕρπειν, 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 French authors consider a great number of eruptions of various kinds to be due to a diathesis which they call "Herpetism," and form such eruptions into the class "Herpétides"; 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 characterized by the presence of one or more groups

* Bazin's *Affections Cutanées Arthritiques et Dartreuses*, 2nd ed. (Paris: 1868.)

† *L'Herpétism, Pathogénie, Manifestations, Traitement, etc.* (Paris: Baillière et Fils, 1870.)

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.

In this work three diseases only are classed under herpes—

HERPES ZOSTER;
HERPES FACIALIS OR LABIALIS;
HERPES PROGENITALIS OR PREPUTIALIS.

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, Gürtelkrankheit.

Definition.—An acute inflammatory eruption, consisting of groups of vesicles on an erythematous base, distributed in the course of a cutaneous nerve.

H. zoster is a somewhat common disease, forming about 1·3 per cent. of all forms of skin eruptions. 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, usually, 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.

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.

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, thigh, 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 seldom on the foot, except

* *Brit. Med. Jour.*, vol. iii. (1866), p. 492.

when 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.* 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. 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 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. Pearse 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

* A case of this kind is figured in Hebra's *Atlas*, vol. ii., Lief vi., Tafel ix.

† Abstract from *Wiener Med. Wochenschrift*, 1874, 1875, and 1877, in *Med. Rec.*, November 15th, 1877.

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 Voight have also reported a similar association. 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.

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.—The facts in this relation are meagre. 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. In adults, sex has 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 occurrence of cases in groups like a small epidemic. This and the definite course of the affection have led some, like Erb, to regard it as an acute specific disease. The occurrence of zoster in people taking arsenic, first pointed out by Hutchinson, a few instances of which have come under my own observation, has been noted sufficiently often to suggest an etiological relationship, probably predisposing, since it is only occasional, and Leudet records cases consequent on carbonic oxide poisoning, due, he thinks, to a toxic neuritis. Cases in association with locomotor ataxy have been recorded by many observers, notably by Charcot, Fournier, Buzzard, etc.

Pathology.—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

* *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 the deltoid, following zoster of those regions Both recovered under electricity.

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 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.

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

* *Die Gurtel Krankheit, Charité-annalen*, bd. ix., p. 114, 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.*, p. 157.

‖ Kaposi, p. 332. 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. 354.

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); a strong galvanic current applied to the back produced a dorsal herpes where one pole had been (Liveing). 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, sometimes even the subcutaneous layer, infiltrated with leucocytes. The effused fluid forces its way between the rete cells, elongating and compressing them, 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.

Diagnosis.—The diagnosis of zoster is generally easy enough; groups of large vesicles on an erythematous base, arranged along the course of a cutaneous nerve, 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. 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

* *Beitrage zur Phys.* and *Path. Anat. der Haut*, p. 245. (Wien. 1867.)

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 course, 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, controls the pain and aborts the eruption. Where the neuralgia persists, quinine in full doses, iron, strychnia, arsenic, and cod-liver oil and a highly nutritious diet, offer the best chance of combating the neuritis. 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 has answered admirably in my hands in some cases ; 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's 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.

HERPES FACIALIS.

Synonyms.—Herpes labialis ; Herpes febrilis ; Hydroa febrilis.

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. 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, chiefly those in which shivering is a prominent symptom, such as febrile colds, pneumonia, ague, etc., but only occurring once in each attack. Vogel says 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.

Prognostic significance.—It used to be supposed that it presaged a favourable course when it occurred in pneumonia, but it has no such prognostic significance in this disease; 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.

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 preputialis.

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, and 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. preputialis, 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.

* *Lancet*, January 20th, 1883.

† *Clin. Soc. Trans.*, vol. xix. (1886), p. 26.

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 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.

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, as French authors assert, such as 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 re-awakened by fresh local venereal troubles. On the other hand, the bad habit, so to speak, is 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

* 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.

† Mauriac relates somewhat similar cases of neuralgia in *Herpes Neuralgiques des Organes Genitaux;* and in his *Ulcerations non Virulentes des Organes Genitaux*, 1878, p. 49, gives a case of gangrene with H. progenitalis

for a *soft sore*, and nothing but time or auto-inoculation can decide positively. In a few days, if the parts be kept separated 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 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; but Kaposi's statistics of over 30,000 cases give 1 in 300. But he includes some bullous eruptions not classed under pemphigus by English writers. 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 at intervals of a few days in crops, 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 develops and, 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 becomes 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 where 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 the 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 where 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.

* Quoted *Arch. Derm.*, vol. vi., p. 233, from *Wien. Med. Presse*, 1880, p. 183.

The contents may be purulent at an early stage, or yellow 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, the only one in England, recognised as belonging to this category, though Hutchinson‡ also appears 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

* *Viertelj. f. Derm. u. Syph.*, vol. xiii., 1886, with plates and references.

† *Die Syphilis der Haut.*, 1873, plates liii. and liv.

‡ Hutchinson, *Med. Chir. Soc. Trans.*, 1887, vol. lxx., p. 421, "Chronic Inflammation of the Mouth and Lips, attended by Disease of the Skin and Nails;" Lang, "Pemphigus of Conjunctiva," paper, with references, read at Ophth. Soc. Lan., Nov. 28th, 1885; and A. Critchett and Juler, "Essential Shrinking of Conjunctiva," ditto, *Brit. Med. Jour.*, Dec. 19th, 1885.

affected and the skin only a very little. These recovered under treatment. The disease is fortunately very rare.

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 Gräfe called "essential shrinking of the conjunctiva." Whether this is due to pemphigus only, as Lang avers,* is a disputed point. A history of syphilis has been present in some of the cases. Some have, and some have not, had bullæ on the skin. I saw some of Lang's cases; but otherwise, I have never seen true pemphigus attacking the eye.

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.

In **P. prurignosus**, 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, while Hebra and Kaposi call it **P. hystericus.**

* Read before the Ophthalmological Society, with references to previous cases.

† Mary S., æt. forty-four, U.C.H. I once saw an unruptured bulla on the edge of her tongue.

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 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.

P. Neonatorum is an acute bullous eruption, which must be distinguished from the well-known bullous syphilide; it occurs sporadically in unhygienic 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 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 that 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 round the anus 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.

There are all grades of severity, from cases where 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, to cases of the severity 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 unhealthy, deep, its surface is

* Third edition, p. 212.

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. The disease described by Whitley Stokes under the name of **P. gangrænosus** is probably varicella gangrænosa. See Dermatitis gangrenosa infantum.

Acute pemphigus is not, however, limited to children, and though very rare it occurs in adults, both in the course of infantile endemics and also independently. Duckworth * relates such a case in a man suffering from albuminuria, in whom about 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; P.M. nothing to account for death.

Sentleben also relates fatal cases with albuminuria.

Cases occurring in children beyond infancy, which get well in a few weeks under treatment, are not uncommon, but outbreaks of **P. contagiosa**, such as have been occasionally described, are in most cases probably examples of varicella bullosa or impetigo contagiosa. 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 autoinoculable, but the new one was smaller than the parent bulla. Micrococci were found in the bullæ, like the figure 8. He carefully excluded varicella bullosa as an alternative diagnosis, but they were probably impetigo contagiosa.

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 characterized by the formation of flaccid bullæ, which speedily rupture and discharge their opaque contents, leaving an inflamed, excoriated, and fissured surface.

* *St. Bartholomew's Hosp. Reports*, 1884, p. 41.

† *Revue de Médecine*, December, 1884.

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 whom 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. Haliburton, 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.

* In Martha W., æt. thirty-two (P.M.), there was double pneumonia, pleurisy, and pericarditis. No visible nervous changes in the cord or medulla or brain either macro or microscopically.

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.

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 most important. Although many instances of associated cerebral disease with bullous eruptions are on record,† I am not aware of any uncomplicated with

* *Deutsch. Med. Wochens.*, No. 7, 1886. Joseph reported the same cases elsewhere.

† Leloir, *loc. cit.* Two recorded by Schwimmer in his *Neuropathischen Dermatonoses*, cases 13 and 14, p. 148, *seq.*; case 12 is also interesting; one by Meyer of Strasburg, in Virchow's *Archiv.*, November 5th, 1883, full abstract in *Brain*, January 1885.

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.

Déjérine records a case in which twelve days before death pemphigus broke out on the extremities, and P.M. there was 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 P.M., where during life there had been extensive bullous eruptions. Bullous eruptions are fairly 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 paralyzed, 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.

Déjérine, Quinquaud, Leloir, and Jarisch found degeneration of the peripheral nerve ends in four 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

* Balmer, *Archiv. für Heilkunde*, 1875, p. 317.

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 akantholysis, 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.

Anatomy.—The anatomy of the bulla has been investigated by, among others, Haight, Hebra, Kaposi, in Germany, Déjérine and Leloir in France, and by myself, and the contents have been analyzed, 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 peptonized gelatine, minute 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, of which the trabæculæ 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 instances (Steiner once saw it). Déjérine and Leloir

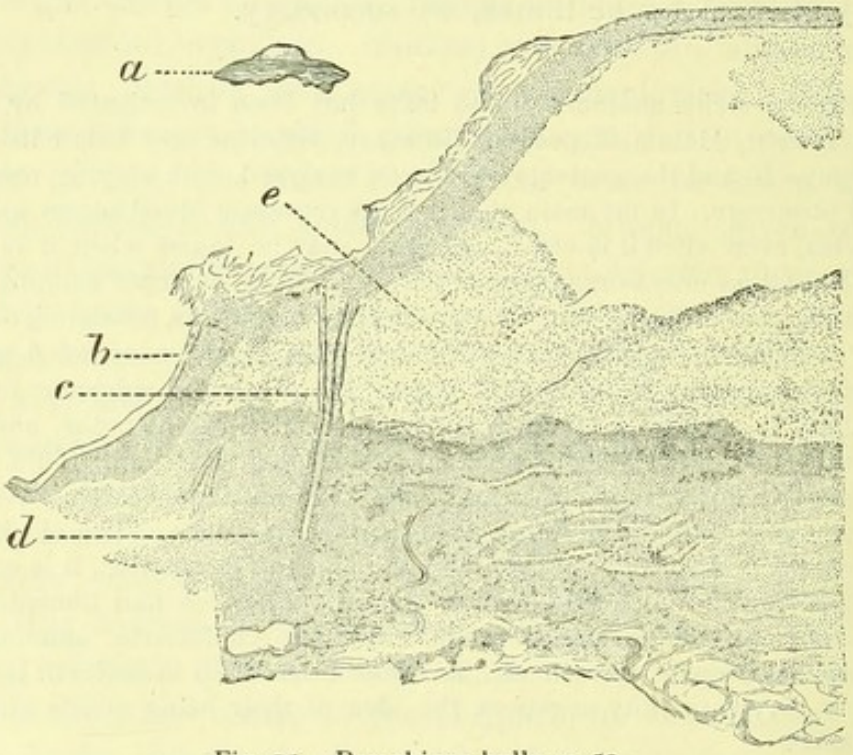

Fig. 15.—Pemphigus bulla × 50.

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.

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 constant or even often 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 of 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, 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 are present, they are rarely severe. The erythema papule or tubercle 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 bullosum, though such is the case sometimes. The diagnosis from hydroa 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 unfrequently 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 gangrenosus) 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 invariably fatal, though the cases often last for many years. 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.

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 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 33), 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 in these parts; the oleate of zinc or lead, or boracic 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 of 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.

Synonyms.—Hydroa herpetiforme (Fox); Dermatitis herpetiformis (Duhring); Pemphigus pruriginosus (Chausit and Hardy); Herpes gestationis (Milton and Bulkley); Herpes circinatus bullosus (E. Wilson).

Definition.—A bullous eruption, associated with erythema lesions and intense itching.

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

* *Sydenham Society's Atlas*, plate, No. XXXIII.

separate name; Bazin * proposed three varieties—H. vesiculeux, H. vacciniforme, and H. bulleux. It is now acknowledged, even by Bazin himself, that H. vesiculeux is the disease that Bateman described as erythema and herpes iris; it has therefore no *raison d'être.*

H. vacciniforme was originally described by Bazin from a single case, but afterwards he saw several. "It appears after exposure to much wind or the sun, there may be slight malaise and anorexia, and then the eruption comes out on the uncovered regions, such as the nose, cheeks, wrists, hands, or other parts, including sometimes the mucosa of the mouth. Red spots first appear, on which round vesicles, like those of herpes, spring up; on the second day distinct umbilication is produced; then the contents become opaque, and they resemble small-pox or vaccine pustules; each dries up from the centre towards the circumference into a crust, and when the crust falls off, it 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."

Dermatologists have long puzzled over this description, and with others, I fail to recognise the disease intended to be represented. Tilbury Fox thought it was a variety of H. bulleux, in which umbilication occurred earlier and more markedly than usual; separate recognition is therefore scarcely made out. H. bulleux is a mere variety of the disease about to be described, to which it is proposed to restrict the term hydroa. 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. It is only quite recently, chiefly through Tilbury Fox,† and, more recently, Duhring,‡ in some very able papers on dermatitis herpe-

* *Affections Cutanées Arthritiques*, pp. 194, 261, and 403.

† 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.*, Aug. 30th, 1884, and several subsequent papers in *N. Y. Med. Jour.*, 1884 and 1887. Also "Hydroa," *Brit. Med. Jour.*, May 22nd, 1886, a general view of the subject by myself.

tiformis, that we have been able to gain a clear idea of this protean disease. Nearly 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.

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 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 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 element usually appears. 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, and 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 evacu-

ated ; 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, so that in a well-marked case, 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 the patient greatly, but fatal cases are rare.

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 "**Herpes 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 in 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 treat-

* O.P., 1885, No. 139.

ment. 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.

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. Then again, in Harvey G., æt. fifty, the early attacks were attended with the usual circinate erythema, while subsequently this was quite absent, huge bullæ being the sole eruptive lesion. It was then indistinguishable from ordinary pemphigus, except from the history. The itching was very great in the erythematous stage, and slight in the bullous period. On the other hand, 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.

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.

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

* O.P., 1885, No. 96.

† *Medical News*, June 2nd, 1883.

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 abundantly 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.

Etiology.—The cases are not sufficiently numerous to make many positive general statements. 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 also in children. Robinson of New York,‡ records a case in a boy of ten, and probably younger cases will be discovered. It is, however, most common in young and middle-aged adults. The oldest case I know of, was one of my own, a man æt. sixty-seven.

Its occurrence during pregnancy, and recurrence with several succeeding pregnancies, show that there is some etiological relationship, probably reflex irritation of the vaso-motor centre; and the irritation of this centre, either direct or indirect, is the most

* 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.

† *Archives of Dermatology*, July 1878, p. 211.

‡ *Amer. Jour. of Cut. and Ven. Dis.*, January 1885, p. 1, with plate.

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.

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.

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.

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, ℥ij to ℥iv 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 ℥viij, or other anti-pruritic agents (Lotions, F. 20 to 37), are the most reliable, and by obviating the necessity of scratching, materially facilitate the return to health.

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 only one undoubted case in America, by Heitzmann. 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 recent 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

* "Impetigo Herpetiformis," Kaposi, *Viertelj. f. Derm. u. Syph.*, vol. xiv., 1887, p. 273. Highly illustrated with coloured plates.

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 preceded the onset of the eruption and of each outbreak, which was immediately followed by a decline of temperature, so that the general symptoms are those of a remittent fever, with dry tongue, inter-current rigors, bowels loose, urine high-coloured, 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 as apparently a severe intertrigo, 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. Heitzmann's case† occurred in a woman at the climacteric period; the I. herpetiformis had run its course, but was succeeded by a rapidly fatal pemphigus.

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 Kaposi, in his recent monograph, strongly, and I think successfully, controverts this view.

* *Brit. Med. Jour.*, Vienna correspondence, July 1884; p. 280 Kaposi's paper, *loc. cit.*

† *Archives of Dermatology*, vol. iii., Jan. 1878.

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 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, 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 affected, and in the affection of the oral mucous membrane sometimes preceding the skin lesions, it recalls pemphigus vegetans.

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.

PSORIASIS.

Deriv.—ψωρά, the itch.

Synonyms.—Lepra ; Lepra alphos ; Alphos ; Psora ; *Fr.*, Psoriasis ; *Ger.*, Schuppenflecte ; Psoriasis.

Definition.—A chronic inflammatory disease, characterized 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 recognizable. 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 dis-**

coidea). 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 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 not 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, and 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. eczemateux** 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

* It is very rarely, if ever, absolutely universal, but Hebra seems to think that such exist. 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.

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, hardness, and thin secretion; there is 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 palmaris. I have, however, met with one extreme instance, in which it was localized to the left hand, especially affecting the palm, for many years. 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.

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; 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 of 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.

Children.—Psoriasis in children differs in no way from its manifestation in adults, except that the patches more often remain small, and the disease is seldom so extensive or so severe, as in adults; but the face is more frequently and exclusively affected. 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. Elliott of New York records a case æt. eighteen months in which the palms and soles were affected; and Kaposi mentions one æt. eight months, whose father was also psoriatic. 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 psoriatic 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. Psoriatic 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.

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

* *Lancet*, October 24th, 1884.

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, and 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 enlargement 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 papillæ. 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 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 could be seen between the lobule 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 differ-

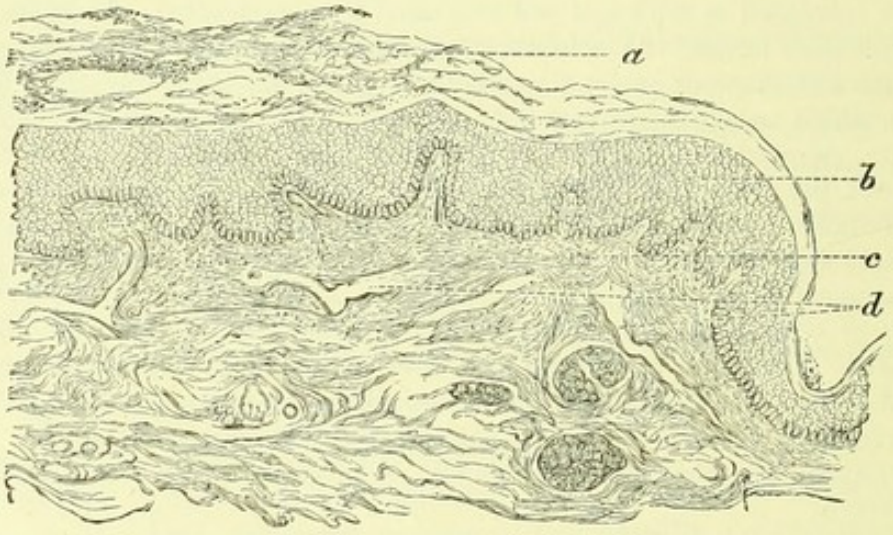

Fig. 16.—Psoriasis. A papule the size of a pin's head × 125.

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.

ence 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*

* Robinson, *New York Med. Jour.*, July 1878, vol. xxviii.

because he is one of the most recent and careful observers 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, 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 ruber planus and acuminatus, some forms of eczema, pityriasis rubra, squamous syphilides, seborrhœa, tinea circinata, and lupus erythematosus.

From Lichen Ruber Planus. Difficulty only arises when the lichen ruber 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

* Thin, *Brit. Med. Jour.*, July 30th, 1881.

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. In L. planus staining is always a marked feature.

From Lichen Ruber Acuminatus.—Error may arise between the papular stage of the lichen and psoriasis punctata, and between general lichen ruber and general psoriasis; but in L. acuminatus 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 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 fawn-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.

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. This 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 is 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 tr. 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 contraindicated 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), when the eruption is coming out acutely and the patches are very hyperæmic, in which cases, 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.

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. The dose should not be more than one-sixth of a grain with sugar of milk three times a day to begin with, gradually increased as the stomach can bear it up to gr. 1 or gr. 2 three times a day. I have seen some good result from it, but it is so liable to produce vomiting, even in small doses, and in most cases is so slow in its action, that it will never be much used.

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. ant. tartaratum useful in acutely inflammatory cases, as Malcolm Morris recommended.

Where the eruption is very extensive, diuretics, especially of acetate of potash, are often useful in reducing the hyperæmia. The good effects which Greve and Boeck, of Norway, 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. 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, with some points to guide as to which to employ, are given.

They are best arranged in classes according to the intensity of their stimulating 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 it, and 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. 5 to gr. 15 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. 15).

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.

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 Balmano 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. Bésnier'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.

Pyrogallic Acid is not quite so strong or rapidly efficacious as chrysarobin, but it is a very good remedy. It excites no inflam-

mation unless applied continuously, and even then not beyond the point of application, but it stains the skin, 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 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 that I have found useful, are cantharides, extract of capsicum, and 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 (ʒss to ʒij to the ounce) and salicylic acid (gr. 20 to ʒij 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 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 which are 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, Harrowgate, Buxton, and Strathpfeffer 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.—πίτῡρον, 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 scratch-

ing 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 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.

PITYRIASIS RUBRA.*

Synonyms.—Dermatitis exfoliativa; Pityriasis rubra aigu (Devergie).

Definition.—Pityriasis rubra is an inflammatory disease, involving the whole surface of the body, characterized 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.

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

* *Literature.*—Buchanan Baxter, "General Exfoliative Dermatitis," *Brit. Med. Jour.*, 1879, vol. ii., pp. 79, 199; Hutchinson, *Rare Diseases of the Skin*, 1879, p. 243; 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 Generalisé* (Paris, 1882), I have only read the analysi of in *Ann. de Derm. et de Syph.*, 1883, vol. iv., p. 90.

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 disease spreads rapidly at the edge of the lesions; and 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, but soon assumes a deeper hue, but the colour is partially concealed by the scales; the redness is uniform, and there are none* of the red puncta, that 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, no 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, and the redness gets more brownish in hue. 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.

* The case described in Hillier's handbook is an exception to this.

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, 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 from 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 a general plugging of the hair follicles, with epithelium, constituting a pityriasis pilaris (the lichen pilaris of some authors), 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 tempera-

* 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.

ture 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 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 lichen ruber, 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 lichen ruber 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 lichen ruber acuminatus. Baxter also had a case developing on lichen ruber. He also had a case following pityriasis capitis and erythema papulatum, and another in a child

* Mary T., U.C.H., females.
† S. Mackenzie, *Lancet.*
‡ Guibout, *Union Médicale.*

of six months developing from eczema of the head and face. 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. In my experience, it is far more frequent after psoriasis than any other form of dermatitis. It is noteworthy, that 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.

Courses 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, at 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,

* *Amer. Jour. Cut. Med.*, vol. iv., January number.

who had been ill a fortnight. The whole of the body surface, including the oral mucous membrane, was of a deep red colour, and 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. cret. gr. 1 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 in 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 with marasmus and loss of heat, with or without diarrhœa ; in those that 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, V. 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 ; four months is the youngest undoubted case recorded, seventy-seven years the oldest, but the majority occur between twenty 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

* *Viertlj. f. Der. 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.

ruber, erysipelas, etc. Acute rheumatism, which has been a feature in the history of several cases, if it has any causal relationship, it is probably only that the subjects of it are more sensitive to chills than others.

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 there is new connective tissue, 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 defect 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 Lancéraux 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. Frederic 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; and by Boyce Barrow in a case of Baxter's, a child æt. six years, in whom the disease had been general for two months.

As I believe I am the only one who has examined skin from the living body, in whom 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, and comparatively little in the lower half of this part. The sweat glands and other structures below this 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 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

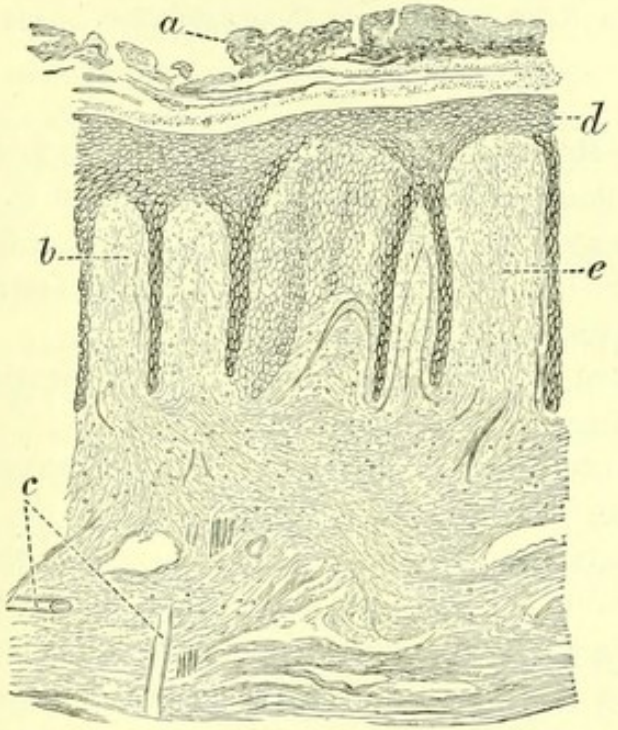

Fig. 17.—Pityriasis rubra, two weeks' duration, side of trunk.

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.

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.

Boyce Barrow states that there was no change in the corium, only in the papillæ; the interpapillary processes were slightly longer, and the zona granulosa had disappeared; the horny layer was much thickened, and some stainable nuclei were still present in the cells. He speaks of no exudation cells, and thinks there was merely fluid exudation. This appears highly improbable.

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 rare, 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 acid citrici gr. 12, 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. 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, characterized by pale red, slightly scaly patches or circles.

This is one of the less common eruptions, occurring about once in three hundred 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 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 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 neigh-

* Gibert, *Traité Pratique des Maladies de la Peau* (Paris, 1868), p. 402.

† Vidal, *Annales de Derm. et Syph.*, January 1882, and the other French writers alluded to.

‡ Duhring, *American Journal*, October 1880, p. 359.

§ Behrend, *Berlin Klin. Wochenschrift*, 1881, No. 38; also Colcott Fox, *Lancet*, September 20th, 1884.

bours, and thus irregular gyrate areas of considerable extent be formed. 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. The patches vary in size, depth of redness, and amount of scaliness. 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 Brocq believes that 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.—The disease is more common in children than in adults, but 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. 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 anomæon;" 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, distinguish 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. S. Mackenzie believes that boracic acid ointment is most effectual. Sulphur baths, preceded by tar soap, are recommended by Vidal; but the first-named lotion I have always found sufficient.

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 clings, 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

in which inflammatory papules, undergoing no metamorphosis during their whole course, constitute the main feature of the disease. Under this definition come—

L. Ruber,
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 in the hair follicle.

Another form whose pathological position is still *sub judice*, many regarding it as a seborrhœa, is provisionally described here until further observation has decided into what group it should be placed. This is

L. Circinatus. *Synonyms.*—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 and 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, often of considerable size, is produced, resembling tinea versicolor, 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 patch. Slight scaliness and marked greasiness (seborrhœa) is almost invariably present on the skin, and seborrhœa of the scalp is associated with a large proportion of cases, and for this reason American authors, and Colcott Fox and Liveing in this country, regard it as a **seborrhœa corporis**. The papules, however, are clearly inflammatory, and there is therefore, as Payne points out,* something more than mere increase of the sebaceous flux. Liveing, however, does not attach much importance to this, as slight inflammation so often accompanies seborrhœa elsewhere; but in seborrhœa, there is not a serpiginous extension exactly like a fungous eruption, and for this reason, although no fungus can be demonstrated, I think it is better to wait a little longer before including it with seborrhœa, which, although a concomitant, is not demonstrably the primary affection.

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. Its pathology† has been sufficiently discussed.

Diagnosis.—The characteristic features are the fawn-coloured

* *Lancet*, Jan. 8th, 1888.

† 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 accidenta Micrococci are abundant enough; but where are they not?

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.

LICHEN RUBER.

Synonyms.—Lichen planus, Lichen psoriasis (Hutchinson).

Definition.—Lichen ruber is characterized by the presence of inflammatory papules, flat and angular, or acuminate, either discrete or confluent, and of some shade of red.

There are two* varieties of L. ruber. (1) L. ruber planus, commonly called L. planus, which is the form usually seen in this country; (2) L. ruber acuminatus, Hebra's L. ruber, which, though very rare in England, in Vienna appears to occupy the place that L. planus does here, the difference depending, as I believe, on the papules being seated at the sweat pores in the plane, and at the hair follicles, in the acuminate form.

Symptoms.—L. ruber 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 localized 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

* Unna makes a third variety, L. ruber obtusus, in which the papules are rounded on the surface. These varieties may occur alone or in different regions on the same patient.

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.

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 generalized form may lead to marasmus and death. It recurs in some people,* but at much longer intervals than in psoriasis, and not so frequently.

* 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.

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 in some cases, for the diffused red hue occasionally observed.

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 may not be involved at all. When papules first form, their colour is often the same as the normal skin, and they are recognizable only on looking obliquely along the surface by their smooth shining appearance, while they are bright red when they develop acutely.

In rare cases both the colour and the shape of developed papules differ considerably from the previous description. 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-Pest Medical Society.†

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

* *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.

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 unfrequently 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 I saw, 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 membrane, especially when upon the penis, may precede the skin eruption by some weeks or months.

All the papules may not be so flat as in the foregoing description; some few may be convex, others acuminate; the last feature may characterise the whole eruption constituting **Lichen ruber acuminatus**, which is the form originally described by Hebra as **Lichen ruber**, and is more frequently general and 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, capped with scales, from a pin's head to a millet seed in size. 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, occasionally affecting the flexures alone, or L. planus may be seen upon the limbs and L. acuminatus on the trunk. 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, flaking, and breaking short off, 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 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. Unna's * description of "L. ruber obtusus" is as follows:—"It consists of medium-sized papules, three to five mm. in average, 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 those in question. 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." I have given this description in his own words, as I am not quite sure of the phase of disease he is depicting.

The plane form may also become general, even after remaining stationary in a few regions for a long time, but the obtuse form never does so, and neither of them attain to so high a grade as L. acuminatus, which, unless treated properly, gradually leads to the death of the patient by general marasmus or phthisis.

L. ruber has been observed to lapse into pityriasis rubra by Buchanan Baxter and myself, and into pemphigus foliaceus by Devergie.

Pemphigus-like bullæ in the course of L. planus have been observed by Morrant Baker, Unna, Kaposi, etc.

Children.—When occurring in childhood—a rare event—the disease takes the same characters and follows the same course as in 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,

* "Clinical History and Treatment of 'Lichen Ruber,'" *Medical Bulletin*, Philadelphia, 1885. An interesting essay, with many cases.

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 thinks that they are due to congenital syphilis, but I have seen cases which were certainly not syphilitic, and 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.—Nervous exhaustion is the most common cause, consequent upon worry, anxiety, or overwork, deficient food, especially in a nervous temperament, but derangements of the digestive or generative system are not unfrequent, 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 fifty. Among forty-six cases at the hospital and in private, thirty-two were within those limits, fourteen between forty and fifty. The extremes were four and seventy years, but Kaposi and Colcott Fox each mention a case at three only. The infantile cases are excluded for the foregoing reasons.

Sex.—In England it is more frequent in women. Twenty-seven out of forty-three of my cases were women, 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 acuminate form there, may account for the discrepancy, as that seems undoubtedly more common in males.

Pathology.—In the plane form the process appears to be in-

flammatory, 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. In the acuminate form the hair follicles are the centre of the inflammation, and in addition to the changes in the rete and papillæ already described, there is great hyperplasia of the cells of the root-sheaths and the formation of knob-like expansions of the follicle. Auspitz considered L. ruber, like psoriasis, to be not inflammatory, but a "keratolysis" spreading along the hair follicles.

The pathological factor which gives rise to the inflammation

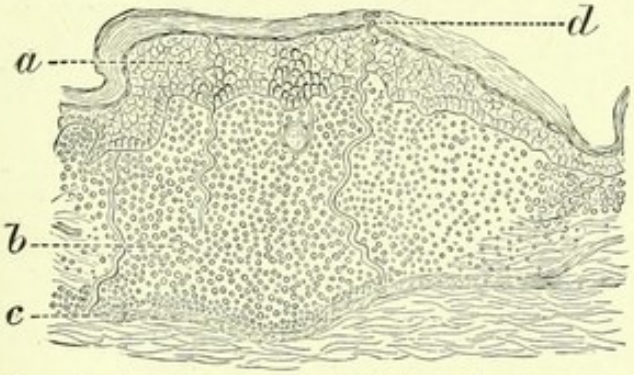

Fig. 18.—A recent papule of lichen planus × 120.
b, copious round cell effusion from vessel; *c*, lifting up epidermis into a papule; *a* and *d*, sweat-ducts traversing papule.

still requires elucidation. Dr. 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 con-

siderable—*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 it, obliterates some of

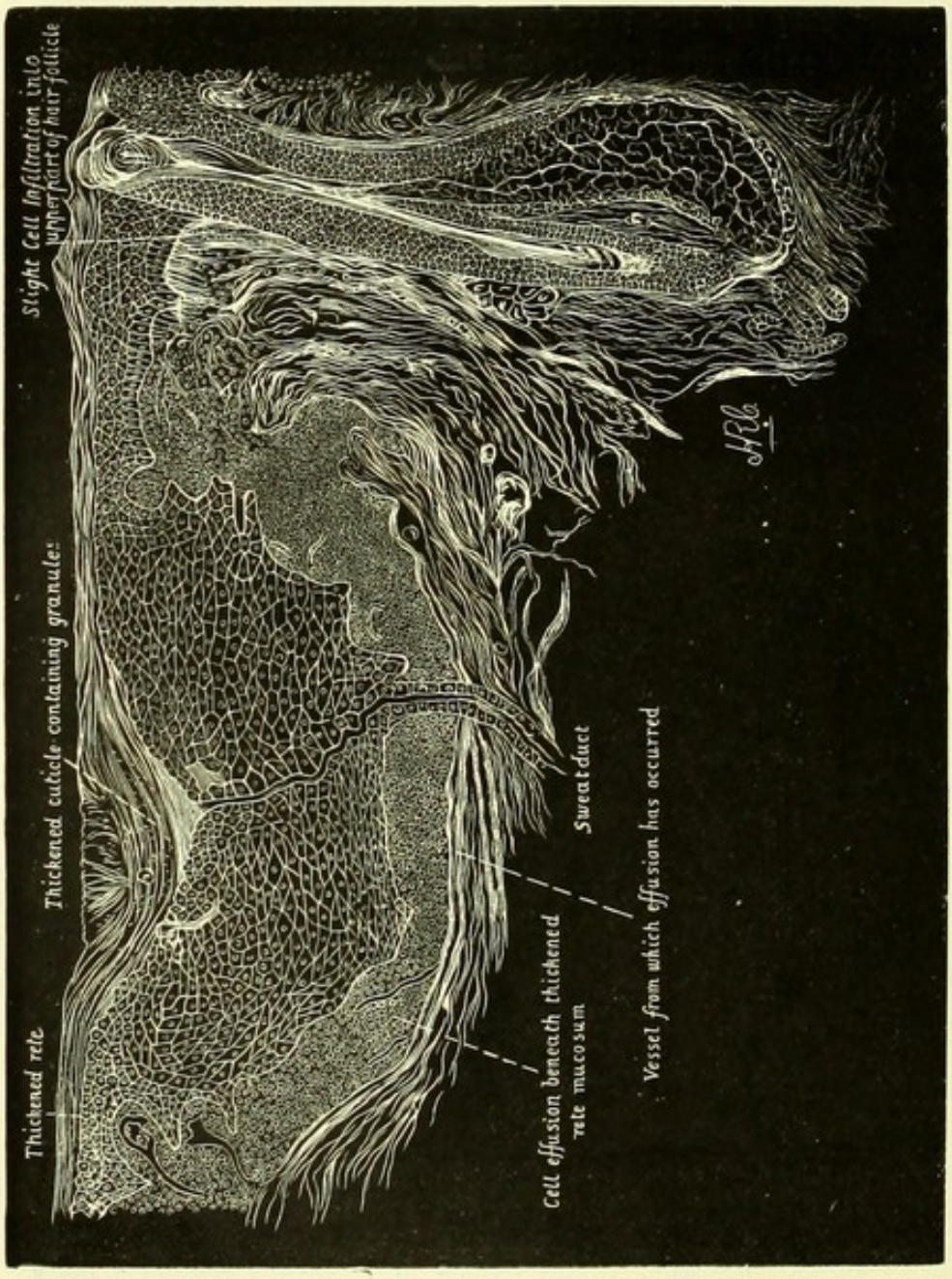

Fig. 19.—A papule of lichen planus, either older than the one depicted in Fig. 18 or formed by a less acute process. The hair follicle by the side of the papule is quite healthy, the papule being formed round a sweat duct.

the papillæ, while others are enlarged by the downgrowth of the interpapillary 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, which 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 that 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 hair follicle; 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 has since corroborated the above statements in the main. The description given by Neumann, Biesiadecki, and other German authorities usually received, differs so much from my account as to require explanation. I think the discrepancy may be accounted for by the fact that their observations were made upon cases of L. acuminatus in an advanced stage, whilst mine were made upon recent papules of L. planus. They therefore describe the disease as commencing deeply in the corium in and around the hair follicles, which are enlarged by cell proliferation and infiltration, producing knob-like and spigot-shaped excrescences upon them. The arrector pili muscles are notably hypertrophied, while the changes in the rete, etc., correspond with my observations on the patches last described. Most of these latter changes are, as Kaposi points out, common in other chronic inflammatory patches, *e.g.*, of eczema and prurigo.

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 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 faces. The position might help here also.

L. ruber acuminatus, whilst discrete, might be mistaken for *eczema papulosum* or *psoriasis punctata*. In L. acuminatus, 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 lichen, especially in the palms and soles, which are rarely affected in psoriasis, while in lichen 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.

Prognosis.—This is generally good for ultimate recovery, but the patients often improve slowly. The worst form of the generalized 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.

Treatment.—The treatment in the main, is on the same lines as that for 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 recommended 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. Nevertheless in the worst forms of the disease when of long duration it is doubtless the sheet anchor of our treatment. Hebra lost all his generalized 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, hypodermically ɱiv of Fowler's solution to ɱxx of distilled water injected every day for three or four weeks, or in the form of Asiatic pills, three, gradually increased 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; some improvement ensued, and then pityriasis rubra developed. This method is too painful for most people. 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 sub

acetatis, 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 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. Alkaline and bran baths are likely to do good in almost all cases, and tar or sulphur baths sometimes. Time alone removes the pigmentation left after the removal of the papules.

LICHEN SCROFULOSUS.

Synonym.—Lichen scrofulosorum.

Definition.—Lichen scrofulosus is characterized 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 unrecognized 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, but many of the very slight cases were not recorded.

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, but 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. In extreme 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 common 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 or ulceration of the skin are also common. Phthisis is unusual, but may be present, and frequently figures in the family history,* and two 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.

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, Kaposi, and nineteen of the twenty-one English cases agree in this; yet Hebra's original description was taken from over fifty consecutive cases who 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 under 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.

* 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's published in vol. xii. of the *Clin. Soc. Transactions*, in which there is a very good plate of the disease.

† Quoted and figured in his *Atlas*, but the diagnosis was not quite conclusive.

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.

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 most resembling it are papular eczema, lichenoid 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 almost sure to go on to vesiculation at their summits, and itching is almost always a prominent symptom.

The more common of the *lichenoid 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, but, 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 probably the age of the patient will suggest further investigation, when other evidence of syphilis will be almost sure to be 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, will

* Though usual, it is not invariable, and I have known it very marked in the early stage.

† 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.

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 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, and trochanteric regions, the abdomen, 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. ruber acuminatus and L. ruber 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 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.

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 and iron

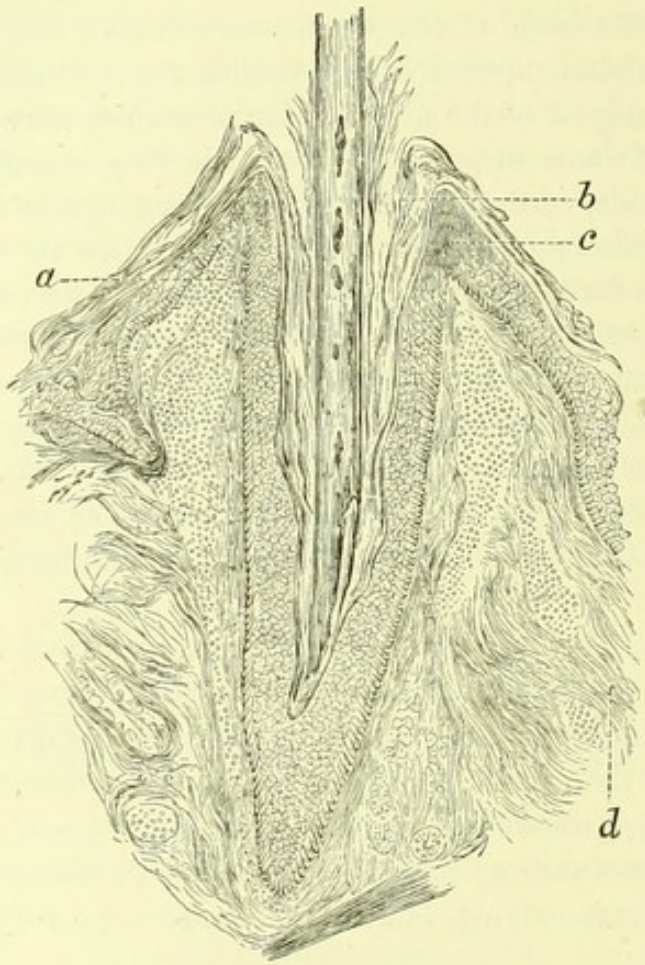

Fig. 20.—Lichen pilaris.

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.

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 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, greates 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 Dr. Tilbury Fox, include inflammatory conditions of the hair follicle, 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.

FURUNCULUS.

(Latin for boil, diminutive of *fur*, a thief.)

Synonyms.—Boil; furuncle; *Fr.*, Furoncle; *Ger.*, Furunkel, blutschwer.

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 unfrequently 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 * and Bazin described as hydroadenitis. The process lies deeper, commencing in the subcutaneous tissues. The little tumour is about the size of a pea, and is most frequent in the axillæ and fork, near the nipples, the arms, and sometimes the face, 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 there is somewhat less induration, it is very like the ordinary form of boil, and, like it, there may be only one or two, or a crop; after reaching the surface it bursts and gets rapidly well. They are ascribed to local irritation, but in my experience are connected with hyperidrosis.

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, 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. 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

* *Jour. de Méd. et Chir.*, October 1866.

we must add the sweat glands, and there is strong reason to believe that the inflammation is set up by microbes which gain entrance through these channels. According to Pasteur, whose observations have been confirmed by Lœwenberg, micrococci, which he calls "Torula pyogenica," 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. Lœwenberg 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. citricus. Kirchner of Wursberg found S. albus only.

Diagnosis.—The disease is so well known that the patient usually makes the diagnosis himself. The differences from a carbuncle are given with that disease.

Prognosis.—When occurring in crops, the disease often gives much trouble, and it is impossible to predict how long it will last. When dependent upon some serious general condition they 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, or 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.

* Lœwenberg, Internat. Med. Cong., 1887.

Unless the patient is gouty, tonics and nutritious diet are generally indicated, and ferruginous aperients, such as Startin's mixture (Mixtures, F. 16), are adapted to a large number of cases.

Two more 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 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 is a good remedy 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 large doses of quinine are requisite. Early local disinfection is, however, the most efficient means of preventing their constant recurrence.

Locally.—The aim must be to prevent, or at least limit suppuration, but when it has taken place excision and thorough disinfection of the cavity is the best plan. 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 early 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 a compress dipped in spirit of camphor should be applied for a few minutes at a time, 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. Lœwenberg 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. When suppuration has occurred, and the boil is opened, P. Eade recommends a strong solution of carbolic acid and glycerine in equal parts; this is in my experience too strong. The B.P. glycerole of carbolic acid is strong enough, and should be dropped into the cavity, or this may be filled with boracic acid, or better still with iodoform or iodol, and a good dressing is the old-fashioned ung. resinæ or calaminæ. The treatment I adopt is to open each boil as soon as there is softening of the centre, and rub in iodoform or iodol. Fresh boils soon cease to appear.

For sweat-gland boils, painting with collodion is simple and effectual.

CARBUNCULUS.

(Dimin. of *carbo*, a live coal.)

Synonyms.—Anthrax;* Carbuncle; *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

* 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, the well-known bacillus anthracis being exclusively applied to the splenic fever organism.

laterally ; the surface is of a bright red, soon getting deeper-tinted, and there is 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 gradually fills up with new granulation tissue, and forms 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. Rigor, 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 patients 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, 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 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 pegtop-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.

* "Columnæ Adiposæ, with their Pathological Significance in Carbuncles and Other Affections." A small monograph. (Cambridge, U.S.: 1881.)

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 ($\frac{1}{6}$ 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 iodol,

then with wet boracic lint and oiled silk. Lately, as soon as there are any openings I 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 iodol 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.

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 foot, thigh, 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 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 zoogloea, in the pus of the patch and in the blood of the general circulation. Cultivations inoculated into

* *Ann. de Derm. et de Syph.*, vol. v., 1884, p. 437, with plates.

† In one instance there were twelve patches in various parts.

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 only know of one case in England, shown by S. Mackenzie at the Dermatological Society, which at all resembles 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.

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 we class them, for the sake of convenience, under the name of dermatitis, and add some qualifying term 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. vacciniata, D. gangrenosa.

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 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 subjects, 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 nowadays, of eruptions, 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 con-

tamination 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 and the milder form of rhus eruption to be presently alluded to.

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 red areolæ. 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.

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 susceptibility 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 is 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 recommended. 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.

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 irri-

* 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.

tants 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 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.

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. In the majority of instances, there is either an idiosyncrasy on the part of the patient, 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.

* *Lancet*, December 30th, 1882.

† *Lancet*, June 3rd, 1882.

‡ *Lancet*, January 1883.

§ *Literature.*—"Behrend zur Allg. Diagnostik der Arznei Ausschläge," *Berlin Klin. Wochens.*, vol. xvi., 1879, p. 714. Berenguier, "Des Eruptions 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. Van Harlingen, "Medicinal Eruptions," *Amer. Arch. of Derm.*, vol. vi., p. 337—very complete, and full of references.

Antipyrin. Since this drug has been used as an antipyretic, several cases of eruption have been reported. Blomfield, Dale, Paul Ernst * of Zurich, and 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. A. A. Smith† described the rash in one case "as in large red welts," 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.

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's, 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

* *Centralblatt f. Klin. Med.* of August 16th, 1884.

† *New York Med. Rec.*, September 5th, 1885.

‡ Imbert-Gourbeyre, "Histoire des Eruptions Arsenicales," *Moniteur des Hop.*, 1867, p. 3,017, quoted by Van Harlingen.

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, which enlarge and coalesce into patches which may be large and disseminate 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, as first pointed out by Hutchinson, in so many instances that some 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 to 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 has been recorded by Gubler and Cheadle, the latter when giving it for chorea. A well-marked case of this was shown by me to the Clinical Society in 1886; it was limited to the neck, face, and axillæ, and was of a dusky brown tint. The patient had taken Fowler's solution only in ℥iij doses three times a day for a week when it began, and it became much darker owing to the continuance of the treatment. In a boy of six, with vesicular erythema, a general pigmentation followed ℥v three times a day for three weeks. 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, but strictly limited to the sites of previous eruptions. 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 never met with it after medicinal doses, although I have

* *Brit. Med. Jour.*, March 11th, 1876 (Correspondence).

prescribed it in twenty or thirty-minim doses of the tincture in hundreds of cases of whooping cough. 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.

Boracic Acid. Molodenkow,* of Moscow, washed out a pleural and 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 on 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.

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.

A diffuse, erythematous, morbilliform eruption followed the administration by Alexander of "tartarus boraxatus" in large doses for two weeks.

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

* Quoted in *Lancet*, May 6th, 1882.

† *Hygeia*, 1882.

‡ *Path. Soc. Trans.*, vol. xxviii., 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.

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 doses will produce the lesion where there is an idiosyncrasy, as little as a grain three times a day in an infant. 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 unfrequently 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 ecthymaform 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, 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,§ etc., and jointly by C. Fox and Gibbes. ‖ Neumann found that the inflammation began first round the sebaceous follicles and later the hair follicles and sweat glands were

* *Path. Trans.*, vol. xxxiv., p. 272, and also p. 273.

† *Arch. of Derm.*, vol. v., 1879, p. 371, in discussion on iodide bullæ.

‡ *Viert. f. Der. et Syph.*, 1874, p. 395.

§ *Path. Trans.*, vol. xxxv., 1884, p. 400, with lithographs.

‖ Med. Soc., November 1885, *Brit. Med. Jour.*

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 vascularized, but that they are not always involved, or in any way necessary for the production of the lesions, is shown by their occurrence in 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 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.

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.

* *New York Med. Record*, May 11th, 1878.

Chlorate of Potassium. Stellwagon* reports a case in which a "fiery erythematous and papular eruption," similar to erythema multiforme and with no 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-Lavalleé† 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 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.

* *Amer. Med. Record*, July 21st, 1883.
† *Ann. de Derm. et Syph.*, vol. v., No. 2, p. 78.
‡ *Clin. Soc. Trans.*, vol. xiii., p. 121.

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 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 only following 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

* Such a case is recorded as erysipelas in *Med. Times and Gazette*, April 3rd, 1886.

† *Amer. Jour. Cut. Med.*, vol. iv., No. 1.

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 with abundant secretion and desquamation, lasting six weeks, and resembling pemphigus foliaceus, ensued; anasarca, without albuminuria, was also present. Copaiba imparts to the skin secretions a peculiarly disagreeable odour.

Cubebs. One case is recorded 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 and 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 more fluid 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 less numbers, and the distribution, like the bromide, is chiefly on the face and limbs, especially round hair follicles.

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, but in a case of Duckworth's which looked herpetic, no fluid escaped on puncture. Duckworth also observed in one case that, as in 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.

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 wrists and forearms, and from this a uniform erythema, followed by free desquamation, spread all over the body.

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.

Purpura has been recorded several times by Silcock, Stephen

* *Clin. Soc. Trans.*, vol. xi., p. 40, with coloured plate.

† *Amer. Arch. of Derm.*, vol. v., p. 333.

‡ Plate 33 of *Syd. Soc. Atlas.*

§ *Amer. Jour. Cut. and Ven. Dis.*, vol. v., p. 1, 1886, with coloured plate.

‖ *Berlin Klin. Woch.*, quoted in *Lancet*, October 22nd, 1886.

¶ *Lancet*, June 1879.

Mackenzie, C. Fox, E. Vidal, 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). 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, calves, and on the 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.

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 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. It must, however, be borne in mind that in many cases the pustules are obviously seated round the hair, so that they do not always escape, and probably the pathology of this and bromide eruption, in which the glands and follicles are certainly sometimes involved, is the same.

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

* Abs. *Ann. de Derm.*, vol. vi., 1885, p. 537.

† *Path. Trans.*, vol. xxx., 1879, p. 476.

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. Tamowsky 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, 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, shiny, and itchy. It may extend over more or less of the body.

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

* *Brit. Med. Jour.*, June 6th, 1882.

† *Practitioner*, vol. xxxvii., No. 4, with bibliography.

crowned with minute vesicles. Kirn * describes even small bullæ possibly due to scratching. Trousseau considers the sweat orifices 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).

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

* *Wien Med. Presse*, No. 18, 1883.

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.

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.

The treatment is simple and effectual. Withdraw the drug and use locally, soothing astringent lotions, such as calamine or subacetate 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.

* Quoted by Bergeron and Proust.

Resin. "About as much as two walnuts" in a woman produced swelling of the face, followed by an urticaria, with small wheals, on the chest and arms (Jacob).*

Salicylic Acid. Heinlein† observed a case in which, when the dose was raised up to gr. 60, itching and tingling of the skin was 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 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.

Santonine. Urticaria developed in a child shortly after taking 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

* Jacob, *Med. Press and Circ.*, March 3rd, 1880.

† *Rundschau*, Bd. 19 (1878), 10 Heft. Urticaria is also recorded in *Practitioner* for February 1879.

‡ *Boston Med. and Surg. Journ.*, October 17th, 1878.

§ *Allg. Med. Central Zeitung*, October 26th, 1878.

‖ *Deutsch. Medic. Wochensch.*, 1886, No. 33.

¶ *Brit. Med. Jour.*, February 18th, 1871.

** *Gazette des Hopitaux*, 1878, No. 124.

rash appeared (Skinner*). Dierbach accuses strychnia of producing pruritus and miliaria.

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 tubercles 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 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.

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.

* *Brit. Med. Jour.*, January 29th, 1870.
† *Deutsches Med. Wochensch.*, 1878, p. 102.
‡ *Lancet*, May 22nd, 1886.

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, iodine, iodoform, morphia, salicylic acid, stramonium, strychnia, tar, tartaratus boratus, turpentine, terebene.

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), iodine, quinine, salicylic acid.

Pityriasis Rubra (?). Bichromate of potash.

Psoriasis (?). Borax, bichromate of potash.

Eczema. Bromine (Voisin), chrysarobin, bicarbonate of potash, iodoform.

Gangrene. Arsenic, ergot, iodide, quinine (one case).

Persistent Desquamation. Quinine.

Abscess. Quinine.

Furuncles. Arsenic, bromine, quinine.

Ecthyma. Bromine (indirectly).

Zoster. Arsenic.

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-seven ; out of these, twenty-two produce erythema, and of the other five, two excite urticaria and three vesicular or bullous eruptions.

The presumption is in favour of all these exanthematic rashes being due to a vaso-motor neurosis, either from reflex irritation, or direct action on the vaso-motor centres. The corroboration of this theory is that no such eruption has ever been known to follow subcutaneous injection of any drug ; and even if atropia, as is not improbable, should prove an exception to this, its well-known influence on the vaso-motor centres would rather strengthen than weaken the theory, the action being only direct instead of indirect. The

more special action of iodine and bromine has already been discussed.

ANIMAL POISONS.

Besides the injuries to the skin that 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 nothing, and 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 swellings 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 iodol or 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 interdigital fold, 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

* 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*.

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 papulæ got gradually more prominent, and it spread at the periphery, but it was two or three years 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 are brought into view, and at times it itches and feels hot, and then, on lateral pressure, a little pus escapes between the papillæ, and gives him relief; otherwise it gives him no trouble unless he knocks it. A wart 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, 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

* *Viertelj. f. Der. u. Syph.*, 1886, heft i., p. 19, with coloured plates of histology.

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. I have met with a case of this kind—a boy of twelve, in whom the disease began when two years old, and extended up to the end of the index finger and over the first knuckle of the second finger.

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 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 infecting 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 being 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 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 hypo-sulphite 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.*, Rötz.

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, sub-acute, 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, 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 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 Schutz. Bouchard, Charvin, 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 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 out of several vaccinated from the same lymph that shows any eruption, it is

* *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 1884, p. 424.

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 eruptions are more common from calf than from humanised lymph vaccinations.

The skin affections may be local or general. The local symptoms start directly from the vaccine vesicles, which have invariably gone on to the pustular stage. These eruptions are erysipelas, lymphangitis and lympadenitis, abscesses and furuncles, impetigo contagiosa—due to the pus becoming inoculable, and then transferred by the child's nails to other parts of the body—and eczema.

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.

The general eruptions have also very little that is special to vaccination, similar lesions being produced by other 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 for 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 a 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 sixteen cases, is 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 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, but the vesicles or pustules are generally small. In a fair proportion 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 still 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, and 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, but occasionally urticaria is present as early as the second day. Behrend records typical cases of **erythema exudativum multiforme** in the first week of vaccination, and in Napier's case the erythema was in rings.

Erythema exudativum and **urticaria** have also been noticed in revaccination. The ulcerative and gangrenous eruptions after

vaccination will be described with other forms of gangrene of the skin.

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, who both had 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.

Although a very rare occurrence, the possibility of communicating **syphilis** by vaccination has been established by Hutchinson, Cory, and others. Under exceptional circumstances, chiefly after animal vaccination, the vaccine eruption, instead of being confined to the points of inoculation, is widely spread,† the "vaccine generalisé" of French authors. Behrend doubts the existence of this condition, but Dr. Longstaffe, of Wandsworth, records the case of his own child, which appears to be one of this kind, in which there were between eighty and ninety secondary vesicles, seventy of which were on the vaccinated arm. Podieu‡ also records a case of confluent vaccination all over an eczematous surface.

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,

* *Ann. de Derm. et de Syph.*, vol. vi., 1885, p. 498; *Amer. Jour. Cut. and Ven. Dis.*, October 1882, p. 11. See also Piffard, *ibid.*, 1883, p. 119, and T. Wood, *ibid.*, March 1883, p. 161.

† Dr. Shirley Murphy, who has had large experience as one of the directors of the Government animal vaccine establishment, informs me that secondary inoculation soon after the formation of the primary vesicles is not at all uncommon before the eighth day, and that the secondary vesicle catches up, so to speak, the primary one, and is mature at the same time. 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.

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 witnessed more than once.

I. Within the vessel.	Embolism.	
	Thrombosis.	
II. Changes in the wall	Acute arteritis.	
	Syphilitic arteritis.	
	Calcareous degeneration, *e.g.*, senile gangrene.	Spasmodic, *e.g.*, symmetrical gangrene.
	Contraction of the muscular or other coats.	Chronic, *e.g.*, ergotism.
	Trophic defects, *e.g.*, acute decubitus.	
III. Pressure on the vessels from without	Inflammatory effusion round 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. 72), 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.

Only three kinds of gangrene of the skin need special description here, viz., symmetrical gangrene of Raynaud, dermatitis gangrænosa infantum, and diabetic gangrene.

* *Viertelj. f. Derm. u. Syph.*, 1886, heft. ii., p. 179, with coloured plates.

† *Dub. Hosp. Rep.*, vol. ii., p. 274.

Symmetrical Gangrene. *Synonym.*—Raynaud's disease.

Definition.—A local asphyxia occurring at the periphery of the circulation, and producing symmetrically distributed gangrene of the skin and other tissues in the affected region.

This rare disease 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 increases rapidly or slowly until the part becomes quite black, in a period varying from a few hours to a few weeks. Black bullæ 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 occurs.

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. This mild condition may also be present on one side, while the other side becomes

* "De l'Asphyxie Locale et de Gangrène Symétrique des Extrémités," *Thèse de Paris*, 1862, and vol. xv. *Dict. de Med. et de Chir.* (Paris, 1872). A translation by Dr. Thomas Barlow, for the New Sydenham Society, is announced.

† *Path. Trans.*, vol. xxxiv., 1883, p. 286.

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.

Etiology.—The disease affects both sexes, in adults, males more than females, probably on account of their being more exposed to vicissitudes of temperature. All ages also are liable to it, ranging from two and a half to sixty-three, but a large proportion are children.

The number of cases that can be referred to, is too limited to make any very positive statements as to more direct causation, 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, scarlatina, and measles, one in connection with multiple tumours (B. O'Connor), two with diabetes (Raynaud and C. Fox), several with hæmoglobinuria (Wilks, Barlow, Southey, etc.). End-joint arthritis has also been observed in two or three cases.

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 to chilblains, "dead or waxy fingers," or other symptoms of a circulation whose force 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 is 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, Pitré 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.

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

* *Clin. Soc. Trans.*, vol. xiii., p. 196.

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 rubbing the affected part with both poles for twenty minutes a day, shampooing being a useful adjunct. When galvanism was used quite early, the full development of the attack was 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. 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 gangrenosus (Whitley Stokes), Rupia escharotica (Fagge).

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's description of an epidemic of "pemphigus gangrenosus" in Ireland in 1809, and, as Barlow has pointed out, the "rupia escharotica" specimens in

* *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.

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 varies according to whether it 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, 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 commences 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. They then begin 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

* Models 206-209. *Catalogue*, p. 95.

† 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.

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° Fahr. 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 cicatrize, 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* 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 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 grades, 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 is 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.

* *Brit. Med. Jour.*, 1883.

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 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 dictum that they were all consequent on varicella or vaccinia. One was after vaccination, a mild case; 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. 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, but it is highly probable that it is due to microbic infection supervening upon varicella and other pustular eruptions in children, under certain constitutional conditions, of which tuberculosis is

* *Amer. Jour. Med. Sciences*, January 1884, quoted in *Brain*, January 1885.

probably one, and perhaps congenital syphilis another, but for which 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 a pustule, 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 boracic 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.

Diabetic Gangrene.—Kaposi† describes a bullo-serpiginous form of gangrene which is apt to occur in advanced cases of diabetes

* *Viertelj. f. Derm. u. Syph.*, vol. xi., 1884, p. 117.

† Kaposi, *Wien. Med. Presse*, quoted in *Annales de Derm. et 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.

mellitus. A few patches are formed on the limbs in successive 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 multiple gangrene of infants is noteworthy. In addition to this form, 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.

CLASS III.

HÆMORRHAGIÆ—HÆMORRHAGES.

PURPURA.

Deriv.—πορφύρα, purple.

Synonyms.—Hæmorrhœa petechialis; *Fr.*, Purpura; *Ger.*, Purpura; Blutflecken krankheit.

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 tissue.

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 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). 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 Werlhofii) 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 might 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 erythemas, with which it agrees in all its characters, except the hæmorrhages, which have in rare instances developed into P. hæmorrhagica.

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 and cancer.

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 new-born (**P. neonatorum**).

5. *Diseases of the nervous system.*—(*a*) Functional, as in connec-

tion 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, hæmatin, fibrin, colonies of bacteria or micrococci, such as Cohnheim, Cornil, and Watson Cheyne 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 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 over-stating 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 (Morell Lavallé). 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 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 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

* *Med. Chir. Trans.*, vol. lxviii., 1885, p. 231.

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 the liquid extract of ergot, and subcutaneous injections of ergotine, and turpentine internally and by inhalation, 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. 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*, a fish scale.

Synonyms.—Xeroderma ichthyoides; Ichthyosis vera; Fish-skin disease; *Fr.*, Ichthyose; *Ger.*, Fischschuppenausschlag.

Definition.—A general disease of congenital origin, 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 localized. All the

varieties are of congenital origin, though rarely recognizable 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 never 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 it, 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.

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 may be seen in the flexures, especially the axillæ, and occasionally on the palms, soles, and face; the patients feel much relieved by it, 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 callosities. 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.

Ichthyosis Hystrix is much rarer, and differs in so many ways from the other forms that many regard it as a totally different affection, but there are connecting links with the commoner forms. 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 recognizable cutaneous nerves, and hence it is usual to see it in lines, running longitudinally on the limbs and transversely on the trunk. The face is rarely affected, or only in a minor degree. In other cases, the nerve distribution cannot be traced.

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." 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 unius lateris, nerve nævous, neuropathic papilloma, papilloma neuroticum. 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's 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 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.

These cases are considered by Hebra and Kaposi to be due to **general seborrhœa**, and not to ichthyosis. 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.

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 disease tends on the

* 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.

† 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.

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, the disease often keeping 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 case of a family in which an ichthyotic mother 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 atrophoderma pigmentosum; 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 a local condition resembling ichthyosis simplex is sometimes seen after injuries or disease of nerves, and I have seen a seborrhœa sicca in an old man develop into an exactly similar condition. 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.

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. They were made upon 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 Malphigian cells adjacent to the papillæ were normal, but, instead of the layers of intermediate cells, which in health fill, or, so to

* *Clinical Society's Transactions*, vol. xii., p. 181, with plates.

speak, level up, the interpapillary spaces, and so form a nearly plane surface, on which the horny layer rests, the strata of horny cells dip deeply down into the interpapillary spaces, so that the hyperplastic corneous layer follows the outline of the papillary layer, with a comparatively thin layer of rete cells intervening. The horny cap consists of closely-adherent, stratified layers, with large spaces interspersed here and there. Each of the vertical fibres springs from a separate papilla. This description differs from Kaposi's, who figures the rete as almost unaltered in its outline. Some sections do not show this dipping down of the horny layer to so great an extent as others, and so approach the condition which Kindfleisch describes as appertaining to ordinary warts, and which he thinks distinguishes them from the ichthyosis

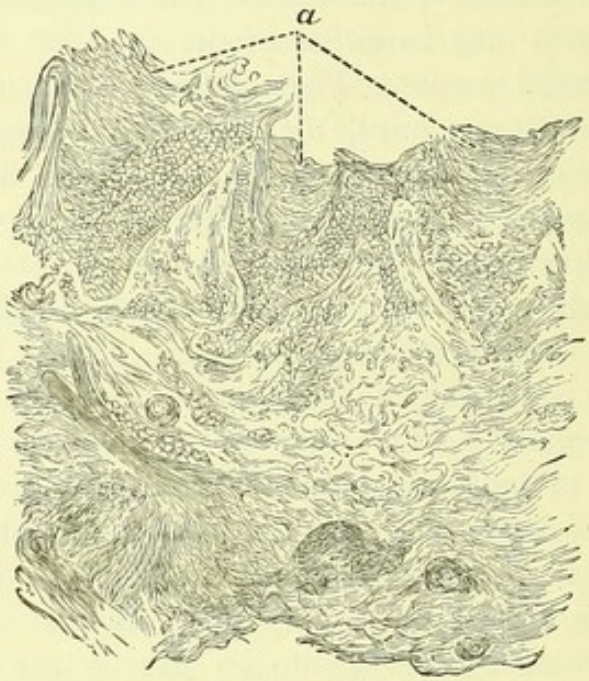

Fig. 21.—Ichthyosis hystrix. × 120.

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.

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.

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 conditions which resemble the congenital cases. When, however, *extensive eczema*

complicates xeroderma there is a great resemblance to prurigo, the more so as prurigo also commences in the first year 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. 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 in the baths, preceded in bad cases by soft soap inunctions; the removal of the scales must be followed by inunctions 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 pleasanter 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 plugs the orifice of the hair follicles, and thus forms 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 skin round 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 scrofulosum* 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 conditions present with the two inflammatory conditions.

Treatment.—This is much the same as that for xeroderma, viz., alkaline and vapour baths, soft soap inunctions, followed by warm baths, or the inunction of oily substances of various kinds, such as are 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, carcinona, 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 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 papilloma. Beigel's† oft-quoted case of **papilloma area elevatum** in a child æt. twelve months, who suffered from convulsions, was, in my opinion, a case of bromide rash, in which the appearance of the papilloma is not unfrequently produced when the scab is removed from the larger lesions, and they are also sometimes followed by papillary hypertrophy. The term, "neuro-

* *Literature.*—"Clinical Study of Papilloma Cutis," Hardaway, *Amer. Arch. of Derm.*, 1880, vol. vi., p. 387,—a good general review of the whole subject. "Das Entzündliche Haut Papilloma, Roser," *Arch. der Heilkunde*, 1866. Weil, *Viertelj. f. Derm. u. Syph.*, 1874, p. 37, with coloured plate.

† *Path. Trans.*, vol. xx., p. 414.

pathic 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 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. In a girl who was subject to chilblains, they were on the backs of the hands vascular, of a purplish blue, except where the horny part was, and bled easily, the blood being very dark.

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. 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.

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 aggregated into small groups, or occasionally large patches, and occur chiefly on the scalp.

Verruca Filiformis. This is a small variety of the previous form; each is of small diameter, or even filiform, with pointed end, not more than one-eighth of an inch long, and occurs 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.*, Spitzen warzen; Spitzen condyloma.

The most common position for these is about the arms, 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, 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 never yet been 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; still there are some facts in the distribution and development of ordinary warts, as well as their occurrence in several members of a family, which lend some colour to 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, and Isquierdo, etc., have found micro-organisms, both cocci and bacilli, but that they are the morbific agents is not yet proved.

The *pathology*, therefore, is as yet unknown.

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.

Treatment.—Until recently local treatment alone has been employed, but Colrat of Lyons, confirmed by other French 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, causes the warts 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

* *Die Krankhaften Geschwülste*, p. 335.

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. Thirty to sixty minims of the tincture of thuya occidentalis (arbor vitæ) two or three times a day is said to be curative, but I have no experience of it.

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; 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. 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 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; boracic acid freely sprinkled on is one of the best applications.

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 papillæ round 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, and 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. They are 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 a 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 by 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, spirit of camphor painted on at night, and wool worn between the toes in the day time. 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.

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

* *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, 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.

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 ensued upon an extensive eruption, and were followed 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 they were nearly six inches long; it is possible, 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, and 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 of Lebert's, Wilson's, and the French Academy cases are repetitions of the same cases. An analysis of these show that nearly half of the cases occur on the hairy scalp, forehead, or temples; about one-fifth part on the rest of the face, especially on the nose; and the rest of the body in the 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 predis-

* *New York Medical Repository* for 1820.

† For an example of this see a case by A. Pearse Gould in *Path. Trans.*, 1887.

posing 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. According to Wilson, the majority start from sebaceous cysts.

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 cauterize the base, or apply chloride of zinc paste or caustic potash, or scrape it with a sharp spoon. If the base is not removed recurrence will take place. Their liability to epitheliomatous development renders it important, that 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 on parts exposed to intermittent pressure or friction. They come chiefly on the palmar and plantar surfaces, are raised slightly, 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

* *Amer. Jour. Ven. and Cut. Dis.*, vol. iv., 1886, p. 5, with plate.

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 thickened condition of the epidermis, accompanied by corns, is said to occur on the palms and soles from prolonged administration of arsenic.

There is a special variety, regarded by many as a local ichthyosis, in which the whole of the palms, soles, and flexor aspect of the fingers and toes are covered with smooth, uniform, horny plates, from one-eighth to a quarter of an inch thick. They are very rare, and are usually congenital, but may be acquired. Congenital cases are recorded by Jamieson,* under the name of "**Ichthyosis palmaris et plantaris**;" by J. Startin, who showed a case at the Medical Congress, 1881; Unna† records a remarkable series of cases, all from the same family, distributed through three generations; and Horton Dale‡ of Ilkeston relates a similar series through five generations.

A precisely similar condition in a young woman came under my observation some years ago, which she stated had come on spontaneously since she had grown up. Hebra§ also describes acquired cases under the name of "**Tylosis palmæ manus plana,**" and states that it appears without apparent cause, and after remaining for about a year gets perfectly well spontaneously. A variety is also described by Hebra, in which thickly-arranged, millet-sized, horny nodules, are embedded in the epidermis. This he calls "**Tylosis palmæ manus verrucosa.**" This is very like the case recorded by Davies-Colley in a Hindoo (see Corns), except that the corns were more aggregated in Hebra's case. 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

* *Lancet*, May 15th, 1885.

† Unna, "Ueber das Keratoma Palmaræ et Plantaræ Hereditarium," *Viertelj. f. Derm. u. Syph.*, vol. x., 1882, p. 231, with photograph.

‡ *Brit. Med. Jour.*, Oct. 1st, 1887, p. 718.

§ Hebra's *Atlas*, heft x., taf. 1, figs. 1 and 2.

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. In congenital cases, a cure can scarcely be expected *à priori*, but Unna cured five members of the family already alluded to, by persevering in 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.

SCLERODERMA.

Deriv.—σκληρός, hard, and δέρμα, the skin.

Synonyms.—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 characterized 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, 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 recognized.

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.

* Quoted by Willan, p. 208, under the name of ichthyosis cornea.

DIFFUSE SYMMETRICAL SCLERODERMA.

There are about a hundred and twenty cases of this rare affection on record. I have had five, four females and one male, under my own care, and have examined about half-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 begin without any preceding symptoms, and 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 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 Gorgonized, so to speak, both to

the eye and to the touch. The mouth cannot be opened, but the lids usually escape, but if involved, they are either half closed, or when contraction takes place, drawn widely open, but in either case immovable. 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, and 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 telangiectic tufts and striæ, contrasting with the rest of the surface, which is paler than normal as a whole, and 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

* Jane E. (U.C.H.).

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 features, with the pallor relieved only by telangiectic 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 ankle, loosens 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 "**sclerodactylie**" 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 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 may precede or accompany the scleroderma, and is the most common complaint, and cardiac valvular disease may be present, either with or without the joint manifestations of rheumatism.

* Jane E., æt. thirty-nine (U.C.H., females).

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. Bancroft * found filariæ sanguinis hominis in the blood of two cases, and thought they might have caused the disease.

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 was 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 sixty-seven years ‡ are the extremes of age on record.

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 of the cases 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 *

* *Lancet*, Feb. 28th, 1885, p. 380.

† Isambert, *Gaz. Hebd.*, 1863, p. 840; and Norman Moore, *Bart.'s Hospital Reports*, vol. ix., p. 70, records a case of two years.

‡ Jane R. (U.C.H.).

§ *Viertelj. Derm. und Syph.*, 1884, heft i., p. 227.

observations of the concurrence of filariæ sanguinis with scleroderma are probably only coincidences.

Pathology.—Of this we know very little. Most of the symptoms are referable to obstruction, on the one hand, of the arterial blood supply, and, on the other, of 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 that 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.

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 bloodvessels, 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 bloodvessels 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 the organic muscular fibres are hypertrophied. There is ektasia 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, with 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 from the affection of the new-born. For the diagnosis from the rare disease *atrophoderma 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 remains. 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.

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, 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.—Whilst 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, 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 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

* *Path. Trans.*, vol. xxxi., 1880, p. 315.

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,

* Wm. M., aged eleven, E. L. C. H.

† Miss K., patch on nape, after remaining two years, got rapidly well after typhoid fever.

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 occcasionally supervened, but this is 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.

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.

* 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 supraclavicular 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 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.

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.

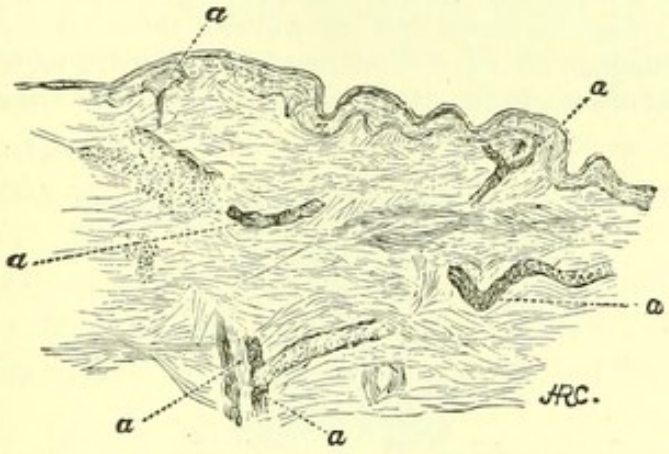

Fig. 22.—Portion of morphœa patch × 60, showing papillæ obliterated and vessels at *a*, *a* *a* blocked with thrombi.

Anatomy.—The anatomy of circumscribed scleroderma has hitherto only 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 Malphigian layer.

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.

Numerous irregularly branched masses of cells, about the size of leucocytes, staining deeply with carmine, but taking rather longer to do so than the sur-

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* Hutchinson's case, *Lectures*, p. 322.

† Simpson's case, *Brit. Med. Jour.*, June 7th, 1884.

rounding tissues, were always found, 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

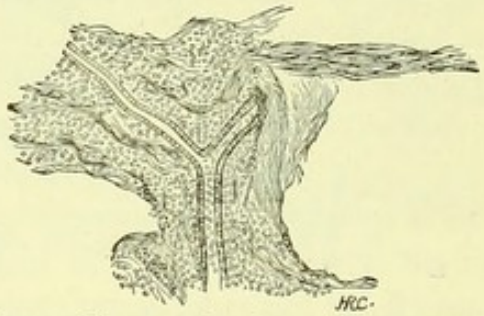

Fig. 23.—Blood-vessel in a patch of morphœa surrounded by a dense mass of leucocytes.

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 excretion, 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.

Duhring 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."

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

* Hebra, vol. iv., p. 156.

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 the man was subsequently seen and described by Virchow, Eulenberg, Charcot, and latterly Payne, who showed him 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.

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, and 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's, 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 is the same as 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

* Plate XLIV. *Syd. Soc. Atlas.*

been stationary for a long time. Two or three years is the time required for a good many cases to get well, but many take much longer, 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 circulation is generally calculated to improve the local circulation. No known local means have been as yet proved to influence the disease for good. Galvanization has been suggested, but it should be applied in the neighbourhood, but not over the patch, as anything that irritates the diseased area, induces further thickening. 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 neugeboren.

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‡

* 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 Curs 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 "hide-bound."

‡ *L'Athrepsie*, by J. Parrot, p. 116 (Masson: Paris, 1887).

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 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 complaint, 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 very 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."

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.

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 in the soles and pubes, which 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 most doughy.

The drowsiness becomes more marked, the pulse feeble, 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, or 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 small. 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.

Anatomically 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.

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, the disease is general in the vast majority; the skin is tense, hard, and waxy in colour at first, unpittable, and adherent to

* Quoted in *Lancet*, Nov. 26th, 1887, p. 1081.

the subjacent tissue. In œdema, the disease 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 peptonized 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.

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 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 is intense lumbar pain, nausea, or even vomiting, and shivering, followed by high fever, and this again by sweating. If the leg is attacked, there is erysipelatous-like redness and rapid swelling, with painful tension,

* *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.

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 and along the spermatic cords and testes, 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 on 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's, 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's, 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 most of these cases the surface is smooth, though often highly vascular (**telangiectic elephantiasis**). It must be borne in mind that there are all grades of the affection, from moderate thickening of the skin and subcutaneous tissue up to enormous enlargement, and similarly great variations in aspect exist, according to the

* 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.

papillary hypertrophy, or lymphatic 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 lymphatic vessels and spaces are much dilated, and make the surface irregular, and during the paroxysmal febrile attacks, become turgid, and may rupture, discharging milky or serous fluid.

In a somewhat allied condition, called **acromegaly,*** there is symmetrical overgrowth of all the tissues, including the bones. The face and limbs are especially affected.

Etiology.—It attacks both sexes at all ages, but is most common in men, as three to one (Waring), and in adult and middle life. 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, it 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.

* *Lancet,* June 11th, 1887, Minkowski's case described, and others referred to.

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 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 host, 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 groin glands, 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. Phlegmasia dolens is another disease, which may occlude the trunk lymphatics and lead to elephantiasis; while long-continued, or repeated attacks of eczema 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.

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 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 stage 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 alluded to, but life is rarely endangered, though much burdened by the "too, too solid flesh," which may clog him 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,

* Hebra, *Syd. Soc. Trans.*, vol. iii., p. 140.

omentations, 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 advocates this, combined with an exclusively milk diet; but the 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 tattooing, chrysarobin applications, etc. The hypertrophic and atrophic pigmentary anomalies are placed in juxtàposition 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 in the corium also there are peculiar branched 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.

This process can be traced in amphibiæ, 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.

* *Allg. Wien. Med. Zeitg.*, No. 29, 1884, and *Viert. f. Derm. und Syph.*, heft. iii. and iv., 1885, and heft. i., 1886.

In vitiligo or leucoderma, while pigment is duly formed in the corium, owing to an absence of these transferring cells, it cannot reach the rete, while 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, cannot be 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 cells. 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.

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 the aged.

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.

* Miss H., *Private Notes*, vol. ii., p. 264.

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.

Pathology.—Lentigo differs from other pigmentation only in being situated in a circumscribed portion of the rete.

Treatment.—This will be considered along with 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:—

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, 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. A case † of permanent pigmentation in a young man, following exposure to great cold in Sweden, came under my notice some years ago. It developed in a few days, affected all the body surface, except the limbs below the elbows and knees, varied from yellowish brown to black in the usual positions of deepest pigmentation, and was associated with papillary hypertrophy on the axillæ and neck and deepening of the natural lines of the skin everywhere. He was perfectly robust, and always had been. 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 two inches by one inch; they were still increasing in number and size, and were scattered over the neck, trunk, and limbs.

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 deep, almost black sometimes, and also long lasting; 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

* 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.

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; and in the pigmentary syphilide, where it is limited to the neck and associated with leucoderma. 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 almost black and infiltrated. 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. 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 black hue on the forehead, temples, and round the mouth.

Discoloration of the skin is common in many cachectic states. Thus in secondary syphilis, there is a very characteristic earthy hue of the face. In tubercular leprosy of Europeans, besides various discoloured patches on the body, there is a general bronzing or livid brown tint late in the disease, and a fawn, or

* Mrs. H., vol. C., p. 27.

yellow colour in the early stage. In Addison's disease, there is the well-known general bronzing of the skin, extending to the mucous membranes. In cancer, there is a sallow lemon tint.

In abdominal tuberculosis, Guéneau de Mussy has noted a pigmentation of the face like that of chloasma uterinum; sometimes besides the nose and cheeks, the backs of the hands, and even other parts may be discoloured almost like Addison's disease. He has also seen it in four cases of cirrhosis with ascites, and in one of cancer of the stomach. In malaria, the skin may be of yellowish or chestnut brown to black colour, chiefly after long exposure to its influence, but it occurs in an extreme and acute development in the pernicious forms, as in the "Black disease" of the Garo Hills in Assam.* In the case of a man suffering from multiple melanotic 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, if varicose veins are present.

* Dr. Clark in *Indian Medical Gazette*, and full abstract in *Brit. Med. Journ.*, November 29th, 1884.

† *Path. Soc. Trans.*, 1884, vol. xxxv., p. 367, with coloured plate.

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, 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 at the edges), 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 brush, 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.

Salicylic acid, however, promises well, 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.

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.

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.

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

* "Traitement des Mélanodermies," *Jour. des Connaissances Médicales*, July 1st, 1886; abs. *Ann. de Derm. et de Syph.*, vol. vii., p. 561.

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, but Duhring 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 was described by Cheadle in connection with the arsenic treatment of chorea, and a well-marked instance came under my notice at Shadwell. The girl had only taken doses of three, gradually increased to five minims three times a day for a fortnight, when the neck all round became of a very dusky hue, the axillæ, especially in front, were nearly as dark, and the forehead was of a yellowish tinge. Owen of Manchester had a case in which it came on the trunk and extended to the arms, legs, and lower eyelids after taking five-minim doses for a month. The colour gradually fades when the drug 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.

Picric acid, in large doses, produces a yellowish colour of the conjunctiva, of the skin, and in 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. 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 excision, carefully stitching up the incision and applying collodion. 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.

* Atlas Lieferung, viii. Tafel 10, Wien, 1872.

† *Amer. Jour. Cut. and Ven. Dis.*, vol. ii., p. 216.

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. 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**). 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 only a very pale fawn colour: he calls them "**white moles.**"

Moles vary infinitely in size, number, and distribution. The face, 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

* 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 Examr.*, 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 st.ll more extraordinary case

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, but do not otherwise extend. Late in life moles, especially if irritated in any way, are sometimes the starting-point of sarcoma and other forms of malignant tumour. When not too large, and if they are disfiguring from their position, they may be removed by the knife* or caustics, not removing 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.

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.

* 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 iris, 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 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 to 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.

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.

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, and Erasmus Wilson one in four hundred in London, and MacCall Anderson one in two thousand five hundred, which last corresponds with my own experience.

Symptoms.—The affection is entirely one of pigment distribu-

* 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 Duhring.

tion. In many, and I believe in all, though it is denied by some authors, there is an increased deposition of pigment preceding the whiter patches. These appear as round or oval, occasionally irregular spots in the darker area, and slowly enlarge, driving the pigment before it, 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 was 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. The disease is certainly more common in the dark races, and 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 depressing influences, especially severe illness, such as ague, and intermittent fever, scarlatina, and typhoid, have preceded the disease in many instances. As a symptomatic condition it has been seen in connection with morphœa, alopecia areata, and Addison's disease.

Pathology.—There are strong grounds for regarding the disease as produced by 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 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

* *E.g.*, Balmanno Squire's case *Brit. Med Jour.*, April 1881.

have any controlling influence. Duhring recommends arsenic, but apparently on theoretical grounds; 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.

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.

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, and loses its natural lines, but 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
      - 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.

ATROPHODERMA PIGMENTOSUM.

Synonyms.—Xeroderma pigmentosum (Kaposi); Angioma pigmentosum atrophicum (Taylor); Dermatosis Kaposi (Vidal); Liodermia essentialis cum melanosi et telangiectasia (Neisser); Melanosis lenticularis progressiva (Pick).

This disease is a very rare one, and was first described by Kaposi* in 1870 under the name of xeroderma, but as that term is already in established use for mild ichthyosis, I venture to suggest the above.

Only forty cases have been published up to 1888. 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

* Hebra, vol. iii., p. 252.

† Recorded in *Med. Chir. Trans.* for 1884, with coloured plates and table of all previous cases. Since then three cases have been published by Pick in *Viertj. f. D. und S.*, 1885; two cases by White of Harvard; one by Dubois and Havenith of Brussels; and one by Kaposi, *Wr. Med. Wochens.*, 1885, No. 44, with general review of our present knowledge of the disease; and Taylor in *New York Med. Record*, March 10th, 1888, publishes the histories of his seven cases, the particulars of which were not previously recorded, with lithograph and bibliography.

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. The ears, 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 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, were affected; while 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 less easily be picked up than normally, 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 amongst 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.

Variations.—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 think 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 years. 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, and they die marasmic or exhausted; only in rare instances do they become generalised in internal organs. All the cases resemble each other remarkably, but there are some variations. Thus the disease has begun as early as six months, and as late as sixteen years, but most are in the second year. 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 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. 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 nine and sixteen years. 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

* Two of Taylor's cases were cousins of three other cases.

Season appears to have some influence, several having begun in spring or summer; and exposure to the sun has been suggested, but not 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 epitheliomas, but in the type case were distinctly papillomatous and not malignant. Taylor speaks of "angio-myxomas," and Vidal of "epithelioma 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. 24).

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 epithelioma 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 epitheliomas.

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 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.

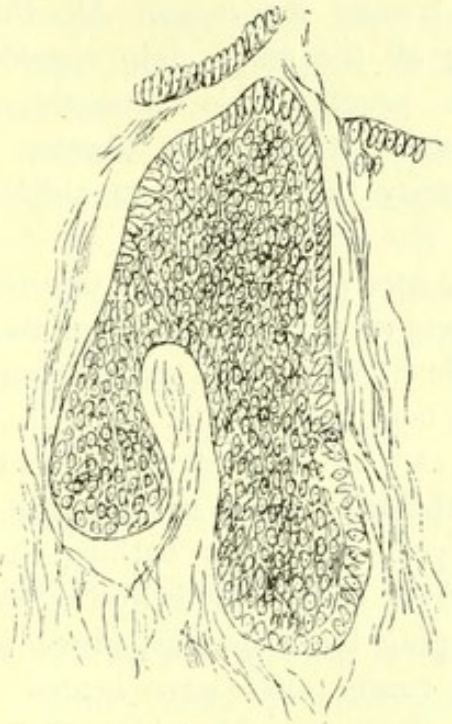

Fig. 24.—A single lobe of the large papillomatous tumour. × 350.

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 limitations of the lesions to 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.

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 in the alleviation of the troubles consequent upon the ulcers and tumours, and the inflammatory condition of the eyes. Diligently bathing the eyes with boracic 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 boracic ointment, and healed up satisfactorily. The tumours were cut out, and the site healed up 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 epitheliomas 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.

This condition is generally associated with general signs of senile degeneration. It may affect the whole skin, its appendages, and subcutaneous tissues, may be simple or quantitative, and degenerative or qualitative, or more often both.

The skin is more or less in folds from loss of fat, less elastic, slightly shrunken, wrinkled, dry, sometimes with fine branny desquamation; it feels thin, may be paler, but more often darker than normal, sometimes even a tawny brown. The arms, trunk, and neck are 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. The hair is lanugo-like or absent. Pruritus, often severe and persistent, is sometimes present. All these changes are due to desiccation from diminished nutritive supply.

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, and 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.

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.

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 papillæ. 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."

Dr. Tilbury Fox * records a case which he considers referable to Bateman's vitiligo, but the tubercles were slower in their evolution.

* *Lancet*, June 28th, 1879.

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. In Catani's case of a youth of twenty years old, they seem to have been produced by the rapid development of fat. 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.

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, was affected; the skin was quite soft and in folds, and when pinched up the folds remained erect; the surface was dry,

* Wilson, p. 394.
† Schwimmer, case 20, p. 189.
‡ *Richmond and Louisville Medical Journal*, December 1887.
§ *Viertelj. f. Derm. u. Syph.*, heft 1, 1874.
‖ *Allg. Weiner Med. Ztg.*, Nro. 35, 1874.
¶ *Vierteljahr. für Derm. und Syph.*, heft 4, 1883, with plate.

brownish, and desquamating, with dilated veins, which, when he stood, made the limbs cyanotic. Microscopically, there was total atrophy of the papillæ and fat, and 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,‡ in which the left upper extremity of a man æt. fifty was affected. 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 other infiltrations of the corium, which ensue in many syphilitic ‖

* Behrend, *Berlin Klin. Woch.*, 1885, No. 6, p. 88. Abs. in *Viertelj. f. Derm. u. Syph.*, Vol. 1885, p. 346.

† Touton, *Deuts. Med. Woch.*, 1886, No. 1.

‡ Pospelow, *Ann. de Derm. et Syph.*, vol. vii., 1886, p. 505, with photograph, and reference to the other cases.

§ Breisky, *Zeitschrift f. Heilkunde, Prag.*, March 15th, 1885.

‖ 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.

lesions, lupus, leprosy, and lichen ruber 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 less 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 precedes and accompanies this condition, and is very characteristic. The appendages of the skin share in these defects, hence the dryness and 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 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 ulcera-

* *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).

tion 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.

Treatment.—The condition tends to get well spontaneously, and only requires therefore protection from cold and other injurious influences.

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 Messrs. Savory* and Butlin, whose observations have been confirmed and extended by subsequent observers.

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.

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

* *Med. Chir. Trans.*, vol. lxii., 1879, p. 373, with coloured plate and microscopic drawings of nerves and full bibliography.

† Quoted in *Lancet*, April 11th, 1885, p. 676.

or little toe, or of 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 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 the patient 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, and 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.

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, but is also to be met with in the West Indies, Western Virginia, North Carolina, India, and the islands of Nossi-Bé and Réunion. 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, 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 part 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 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

* *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*, *Syd. Soc. Trans.*, 1886, vol. iii., p. 728, containing bibliography. Duhring, *Amer. Jour. Med. Sci.*, Jan. 1884, with microscopical examination by H. Wile. "The Histology of Ainhum," by C. H. Eyles, *Lancet*, Sept. 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.

bleeding. All this process is very slow, taking from four to ten years for the toe to be ready for removal.

Not unfrequently the fifth or the fourth toe on the other foot, or even the *great toe* (Crawford), is 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 in children. It affects the male sex much more than the female, and is sometimes hereditary (Silva Lima, Duhring, Dupouy). These facts, and its being limited 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, but this is disputed, because freed negroes who wear shoes are also affected.

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 down-growth 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. At the later stage, there is nothing to be done but to amputate the toe as soon as it becomes painful or troublesome.

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 varioliformé (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 a very common one in England, and it

appears to be quite a rare one on the Continent and in America, though it is doubtless more common than dermatologists' statistics suggest.

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 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 backs 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 hempseed 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

* 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, while the whole contents could be evacuated with strong 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 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.

Etiology.—They are much more common in children than in adults, in the poor than in the rich, and it is said, in females more than in males. Most English authorities agree that the tumours are contagious, while on the Continent* 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.

Turkish baths§ are said to produce the disease, but how far they do this directly, or whether they merely offer favourable conditions for the contagium, it is impossible to say.

* Caillault 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.

‡ See Duckworth's paper on cases favouring the contagious theory (*St. Bart.'s Reports*, 1868, p. 211).

§ I have seen two 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 laid on the felt-covered benches without any intervening cloth.

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 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

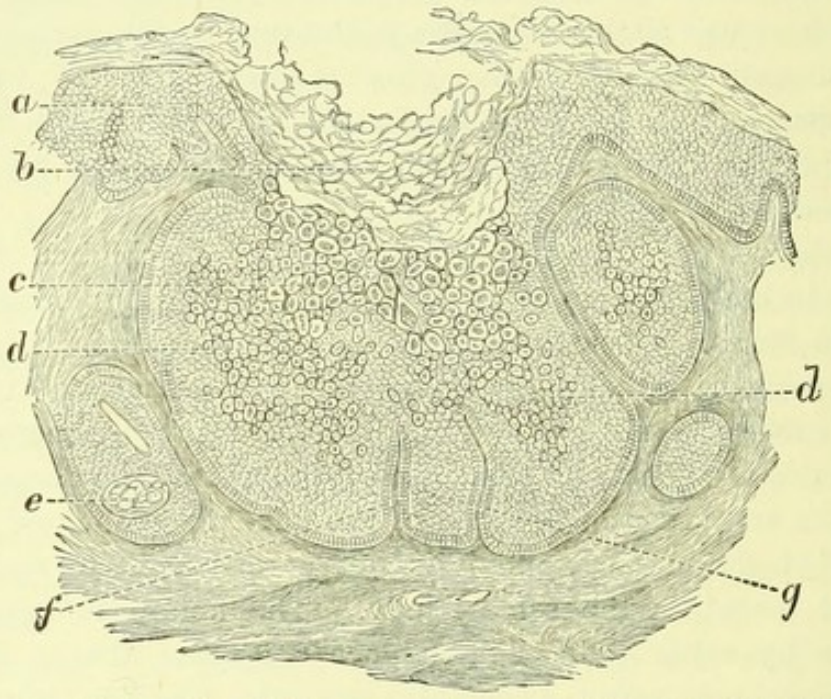

Fig. 25.—Section through the centre of a very small tumour of Molluscum contagiosum just perceptible to the naked eye. × 125.

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.

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 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, and 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 recognizable, 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 inter-papillary 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

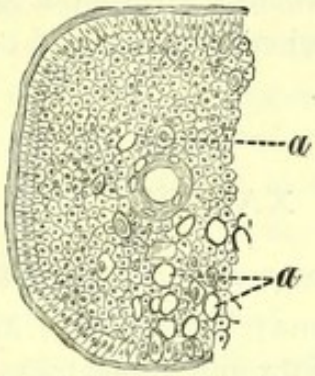

Fig. 26.—Transverse section of a hair follicle in an early stage of Molluscum contagiosum. × 550.

a, *a*, epithelial cells showing molluscum change.

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. 26). Taking next a tumour slightly more advanced, as in Fig. 25, it is found to consist of wedge-shaped lobes separated by a fibrous septum, formed by the compressed papilla, elongated by the continued down-growth 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.

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 nails, 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.

XANTHOMA.*

Deriv.—ξανθός, yellow.

Synonyms.—Xanthelasma; Vitiligoidea; Molluscum Cholestérique (Bazin); Fibroma lipomatodes (Virchow).

Definition.—A fibro-fatty neoplasm forming yellow plates or tubercles 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 tubercles or small tumours (**X. tuberculatum or tuberosum**); they represent

* *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 Xanthélasma*, 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.

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 semi-circle 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 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 **tubercles** 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 tubercles 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 tubercles. 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 tubercles 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. 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, æsophagus, 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 those of the extensor aspect of the fingers and Achilles tendon. Then the lesions may appear first on, and even be restricted to unusual positions, such as the outer canthus, the cheek, the side of the neck, 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.

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 tubercles. About half-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 tubercles. In a case of Barlow's,† 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 tubercles, 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.

In a case of my own, a healthy boy of two months, there was a single oval yellow tubercle, 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

* Quoted by Chambard, with critique of histolcgy, in *Ann. Der. et Syph.*, vol. v., 1884, p. 81.

† *Path. Trans.*, vol. xxxv., 1884, p. 405, with coloured plate.

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.

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.

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 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 a case where two brothers and their paternal grandmother had it.

Of other conditions, dark-complexioned people, and those with a tendency to deep colouration 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

* Virchow's *Arch.*, February 1883, with *résumé* of whole subject of xanthoma, and extensive collection of cases.

above forty 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, not more than a dozen cases being known. It is not associated with jaundice, and beyond showing a family prevalence, being occasionally congenital (Mackenzie and Barlow), and hereditary (Mackenzie), its etiology is obscure, but in one or two instances a gouty and rheumatic inheritance has been probable.

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 the xanthoma cells as the primary feature, and the connective tissue growth secondary.

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 degeneration or deposition, the results of a chronic inflammatory process; in the soft plaques the fatty change, and in the tubercles the connective tissue growth predominates, greatest in the larger and firmer tubercles.

Touton disputes these simultaneously progressive and retrogressive processes; 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

* Chambard, "Des Formes Anatomiques de Xanthélasma Cutanée," *Archives de Physiologie*, 1879, p. 641, with plates.

† Balzer, "Récherches sur les Charactères 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.

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 cystadeno-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. Anatomically, in a large plaque from the eyelid of a woman, who was a martyr to migraine, and had X. multiplex without jaundice, I found large epithelioid, multi-nucleated, oval, roundish, or poly-

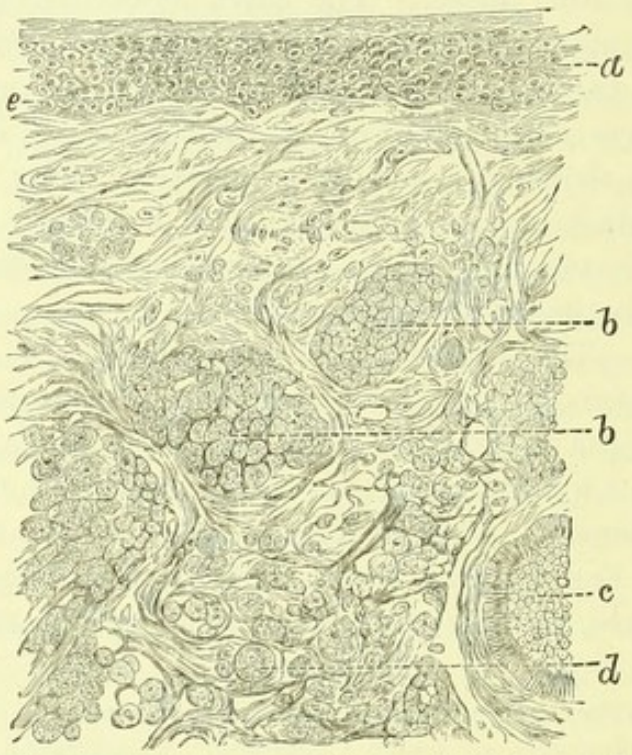

Fig. 27.—Large xanthoma plaque from eyelid. 2 in. oc. ¼ in. obj.

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.

gonal, 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. 27).

The process is chiefly in the middle and lower layer 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, and the process accords with his view of its being a veritable new growth. The origin of the cells has not been traced.

In the tubercles, 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 tubercles 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 by a good observer as a rule in the *British Medical Journal*, as one of X. multiplex, where yellow spots were in the epidermis only, and came off after soaking in olive oil.

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 in 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, and is placed here provisionally, because some of the cases were reported as xanthoma; but it differs in so many respects from the usual type of that disease that its nosological position is doubtful.

Cases have been reported by Addison, Bristowe, Malcolm Morris, Gendre, and two unpublished cases have been shown at the Dermatological Society by Cavafy and Colcott Fox. On these cases, three of which I have examined, the following description is founded.

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 elbows and knees, where they are generally confluent, though the papular origin is still discernible. They have also been seen on the buttocks and 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. 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.

Etiology.—Five out of the six have been males; the ages have been from twenty-seven to forty-eight; there has been diabetes mellitus in all, in Bristowe's probably after the eruption, in

* *Literature.*—Dr. Hughes' case, p. 160, of Syd. Soc. ed. of Addison's works, model 2,738, Guy's Musuem. *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 Syph.*, vol. v., 1884, p. 348.

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. It is noteworthy, that at least four have been stout and well conditioned, and their aspect by no means suggested diabetes, so that the eruption becomes of some diagnostic value.

Pathology.—The pathology is at present doubtful, though the lesions have been examined by Bristowe and Morris; as one of the committee on Morris's case, I had the opportunity of examining his sections, and found the following conditions. The epidermis change was slight; there was some elongation of the rete pegs, and in some parts enlarged papillæ, and partial obliteration of them in others. The chief change was in the middle and upper part of the corium, where there were round and oval cell-masses round the vessels, and in some parts between the lobes of a sebaceous gland and round the sweat ducts. The cells were round, oval, or fusiform, and were evidently undergoing fibrillation; many of the blood-vessels and lymphatics were dilated. Neither Sangster nor I could discover any evidence of the fatty deposition, cholesterin, etc., so characteristic of xanthoma. The yellow head was not explained by the sections; being epidermic it had probably fallen off in the preparation. Morris's observations differ slightly from the above, as he found no connection with the blood-vessels and appendages of the skin.

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 them, of "a lichenous character;" the yellow top is not present at first, nor in all papules, and is quite superficial, and probably entirely epidermic. In xanthoma, visible signs of inflammation are quite absent; the yellow tint is always present, and the patch is in the corium. There were never any patches or striæ, but were all tubercles 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, 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. Whether the comparative acuteness of the process accounts for all these differences, must be left for further experience to decide.

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. If any local treatment is required to allay the irritation, liq. carbonis detergens ♏x to ℥j 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, is all that can be squeezed out. Some have dilated vessels round them, and some 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

* *Literature.*—Wagner, "Das Colloid-milium der Haut," *Archiv. der Heilk.*, bd. vii., 1866, p. 463. Besnier, *Ann. de Derm. et Syph.*, vol. x., Nos. 5 and 6, 1879; *loc. cit.*, vol. vi., 1885, p. 34, with histology by Balzer. Model 1,019 in St. Louis Museum. Liveing, three cases in *Lancet*, March 27th, 1886.

Balzer, who examined both Besnier's and Feulard's cases, has shown that the degeneration commences in the fibres and cells of the upper part of the corium, especially 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. Whether the affection is due to vascular alterations in the first place, he could not determine, but thought it probable.

The disease may be distinguished from xanthoma, which it most resembles, by the glistening and translucent appearance of the granules. Feulard treated his case with good result, by erasion of the masses with a sharp spoon. Some cases get well spontaneously, but very slowly.

LUPUS VULGARIS.

Deriv.—Lupus, a wolf.

Synonyms.—Lupus exedens; *Fr.*, Scrofulide tuberculeuse; Herpes esthiomenos; Dartre rongeante; Esthiomène. *Ger.*, Fressende Flechte.

Definition.—A neoplastic cellular infiltration, producing papules, tubercles, 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 disease, 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 tubercles, which have a semi-translucent aspect under the stretched epidermis, and a brownish hue, so that the appearance of

the tubercle has been aptly compared by Hutchinson* to "apple jelly." After a variable time, more often years than months, the groups of tubercles coalesce by individual extension into a dull red patch or patches, raised distinctly above the surface, soft and elastic to the touch in the centre, but firmer at the edge, 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 tubercles, 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 realized. The disease may ultimately destroy all the anterior soft parts, the cartilages dropping out, but the bones are never 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 tubercles 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.

* Hutchinson uses the term "Lupus" in a very wide sense. His special views are set forth in the Harveian lectures for 1887, published in *British Medical Journal*, vol. i., 1888.

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 tubercles in a boy of six, and Matthews Duncan describes what he calls "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 cicatrization; in another, the destruction is deeper, and a seamed scar is the result; here, one part may be still ulcerating and covered with dirty greenish crust, there, the infiltration is quiescent and covered with scales; here, new tubercles 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.

When the number of foci is great, 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 one of my cases, an elderly woman, it was in bean-sized patches over the whole face, distinctly raised and remaining unchanged for years; in another, a boy, it followed on herpes of the ophthalmic division of the fifth, being limited to the site of the vesicles. Such cases are well entitled to the term **L. disseminatus**, which is, however, 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 tubercles develop near it, and coalesce with each other and the parent patch. This is a more severe form than the disseminate, and occurs chiefly on the neck and extremities, while L. disseminatus is generally on the face. Sometimes there is exuberant infiltration, much raised at the margin above the normal skin, but generally depressed in the centre; this is **lupus hypertrophicus**, and is often seen on the buttock, but may occur elsewhere.

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, and occasionally abscesses, periostitis, ostitis, caries, and necrosis, while the bones of the forearm and leg, and also those of the hands and toes, may become indurated and thickened; more or less crippling of the joints also may supervene from cicatricial atrophy of the skin and adhesion of tendons. Such conditions are not the direct effects of lupus, and would rarely occur except in those who are markedly strumous. 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. 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 witnessed more than once.

When it attacks the mucous membranes, it begins near external orifices, and almost always by extension of the disease from the neighbouring skin, or 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.

Its effects on the nose have been already described; on 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 gum from the teeth; stomatitis is present more or less, and produces the superficial 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. In the larynx, it may affect the epiglottis extending from the buccal cavity, thence to the aryepiglottic folds, and to the other parts 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 the larynx. 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.

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. Papillary growths, **L. papillomatosus** and **L. verrucosus**, from a crown to the size of a 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. According to Unna, **L. verrucosus** is clinically and anatomically identical with verruca necrogenica. This form is much rarer than the more freely ulcerating cases with soft papillomatous development, and I have only met with a few instances of it. It occurs chiefly on the hands and feet. In both these papillary

forms, in my experience, there is an absence of true lupus tubercles, and I think they are really forms of scrofuloderma. The disease may go a step further and epithelioma may develop, if on the face, penetrating to the mouth, and unless promptly and thoroughly removed, will lead to fatal cachexia, Volkman and Hebra having alone saved the life of the patient by early removal. Among general complications may be mentioned, in addition to scrofula, chlorosis, emaciation, and phthisis, the last chiefly where the skin lesion is very extensive.

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. On the other hand, it rarely begins after puberty, though I have met with undoubted instances in older people. Although more common among the poor, no class is exempt, but its frequency varies in different countries. It is more common on the Continent than in Great Britain, and is 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 obtained, 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.

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. A case following in the track of herpes

zoster has 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, but what gives rise to the process is still *sub judice*. Since Koch demonstrated the presence of bacilli, indistinguishable from tubercle bacilli, in lupus tissue, the view that lupus is a chronic tuberculosis of the skin was greedily taken up by many, 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. I have looked for them in vain, and Cornil and Leloir had a similar experience, as in a large number of sections taken from twelve cases they found only a single bacillus in a cell, and that from a case in which phthisis was present. To say the least, it is strange that so much damage should arise from such a sparse distribution. In addition to the bacilli, all structures that are found in a miliary tubercle are present in a lupus, and these are particularly abundant in lupus papillomatosus. It is, however, certainly at most a local tuberculosis, without any tendency to generalise.

Anatomy.—This has been investigated by Virchow, Auspitz, Kaposi, 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, 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 of a delicate fibrous reticulum with abundant vessels, and its larger meshes 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 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 Friedlander, 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, organize into connective tissue and cicatrize, 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 suppura-

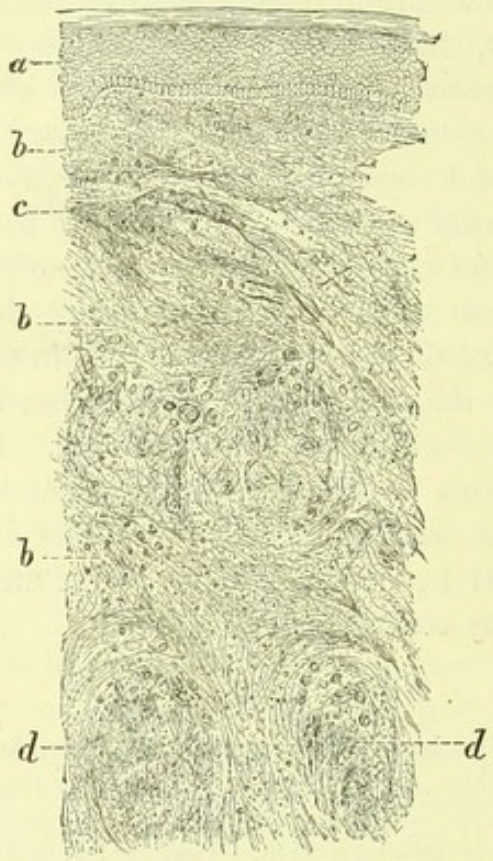

Fig. 28.—Lupus vulgaris from nates. 2 in. oc. $\frac{2}{3}$ in obj. w. a.
a, thickened rete mucosum; *b*, *b*, *b*, round cell infiltration separating fibres of corium; *c*, blood-vessel; *d*, *d*, tubercles.

tion, the lupus infiltration is laid bare and ulcerates. Similar changes occur in the epithelia of the sweat and sebaceous glands and hair follicles; hence ensues 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 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 there are present "apple jelly" tubercles imbedded in the skin, 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 tubercles 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

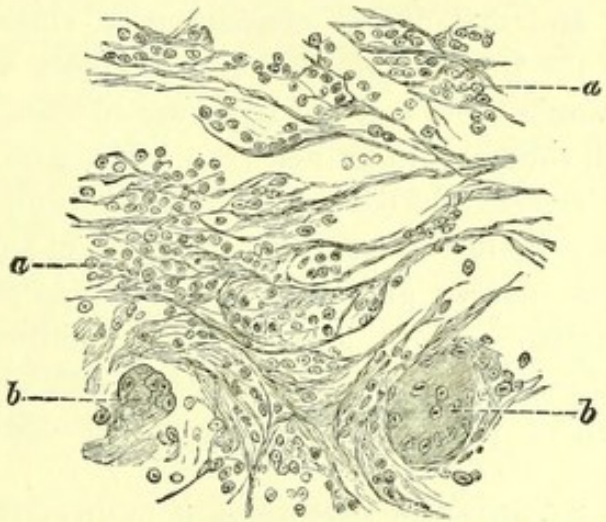

Fig. 29.—Lupus vulgaris from same section as Fig. 28. $\frac{1}{6}$ obj. Powell, 2 in oc. *a*, fibro-cellular reticulum; *b*, *b*, multi-nucleated giant cells.

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 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* there are caseous glands, or the scars left by them, 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 tubercular 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, 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 distinc-

tion. 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. *Lupus 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 tubercles 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 nearly always conspicuously involved in erythematous lupus and not in L. vulgaris.

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 being the chance of permanent removal.

Treatment.—Whilst no internal treatment has any power in removing a lupus patch, much may be done in retarding the progress of the disease, and favouring involution rather than ulceration, and also in delaying 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 unfrequent association with evident struma, cod-liver oil in moderate doses, but steadily persevered in, 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.

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 sometimes seems to be quite robust, is internal treatment of minor importance. 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 their sphere of usefulness. 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. The first class has 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 may often be applied at night, and is a very valuable adjunct. Bismuth and other astringent lotions, such as have been recommended in eczema, act in a similar direction.

The second class is the most important, and embraces chemical and mechanical measures. The chemical are caustics of various kinds, such as

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, and it is 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 lupus, 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, which is given at the end of the book (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, but 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.

The treatment by chemical caustics, however, has been largely superseded by *mechanical* methods, and caustics are restricted almost entirely to those cases in which the patient objects 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 by Paquelin's or the galvanic cautery. Foremost of these I should place erasion or scraping with a sharp spoon, as suggested first by Volckman. The soft lupus tissue is scraped away with a shallow steel spoon, and a very little practice enables the operator to judge how far to go, for the healthy tissues resist the spoon, unless undue force be applied. Inasmuch as small portions of lupus tissue are liable to get pocketed in the interstices of the healthy tissue, Volckman employed multiple puncture with a sharp-pointed knife all over the scraped surface. This, however, is not always necessary, except where there is much cicatricial tissue. As a rule, in my practice, after scraping, the raw surface is freely dusted with iodoform or iodol, and dry boracic lint bandaged firmly on for a few hours to check bleeding, and subsequently it is dressed with wet boracic lint and oiled silk. 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 Volckman, with the inventor's enthusiasm, claims to get a perfect cure by it. After a time, some fresh nodules will appear; these may be dug out again with a small spoon, or, if not large, bored out with a pointed piece of wood dipped in fuming acid nitrate of mercury. 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 method is as efficacious as it is simple. 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: other lines are made at right angles to the first,

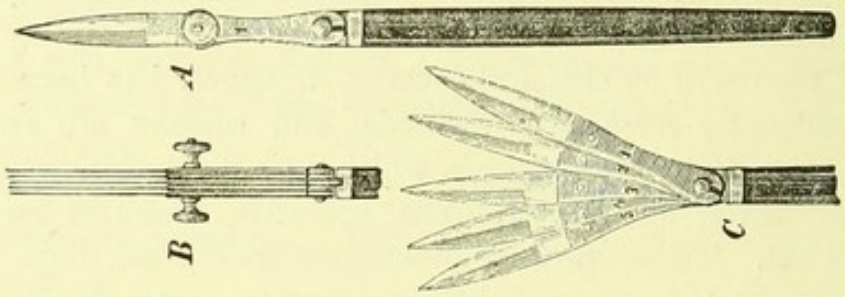

Fig. 30.—Pick's lupus scarifier and multiple puncture instrument. *A*, *B*, closed for use; *C*, open for cleansing.

and perhaps again obliquely. It is claimed by Squire, Morris, and others, especially by Vidal and Besnier in France, that better results and thinner scars are obtained by this method than by scraping, except when the lupus is very superficial, but I prefer scraping, 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 difficult 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.

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. 30). 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, 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. 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.

Other methods applicable in certain cases are Schultz's of Kreuznach method: painting daily, or every other day, a 10 per cent. solution of permanganate 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.

White of Harvard acts on the tuberculosis 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.

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 tubercles 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.* Salicylic acid is another useful drug, as an ointment in the proportion of ʒj to ℥j; it was first recommended by Marshall,† and since by Unna, and I have found it most useful in some cases, especially where there is already ulceration: the unhealthy ulcerations are destroyed, and eventually a sound cicatrix results. Unna employs it as a plaster, adding creasote to numb the pain. It

* 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.

† *Brit. Med. Jour.*, June 25th, 1884.

answers very well, but not so well as in Treves' form, in which enough salicylic acid is mixed with glycerine to make a paste. The pain does not last more than a few minutes, but there is no objection to adding creasote or carbolic acid (ʒss to the ʒj), or, still better, painting on a 20 per cent. solution of cocaine before applying it.

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, the acid nitrate of mercury applied with a piece of wood, and salicylic acid ointment, paste, or plaster.

In a small number of cases, 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 ʒj, perchloride of mercury 1 in 1,000, boracic acid in saturated solution, chlorate of potash 5 or 10 grains to the ʒj, chloral gr. 5 to the ʒj, or weak Condy's fluid (red). Calamine lotion is another good application applied three or four times a day and allowed to dry.

LUPUS ERYTHEMATOSUS.

Synonyms.—Seborrhœa congestiva (Hebra); Lupus erythematodes; Lupus superficialis (Parkes and Thompson); Lupus sebaceus; *Fr.*, Scrofulide erythémateuse; Erythème 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.

Lupus erythematosus is much less common than lupus vulgaris, occurring only once in about two hundred cases. It was described by Biett, Hebra, Parkes, Thompson, and Cazenave, etc., under various designations, but that of Cazenave has displaced all others.

Clinically it may be divided into three varieties:—

1. Circumscribed or discoid;
2. Diffuse or disseminate;
3. Telangiectic cases.

Symptoms.—The **circumscribed** is the most common form, attacking chiefly the head and face, especially the nose and cheeks, often symmetrically. In the early stage, it 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 sebum plugs. 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 unfrequently, 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.

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 eyelids, the lips in all parts, the ears, the scalp, leading there, to permanent loss of hair, and the flexures of the fingers and toes. 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. As a rule, in this class of cases, there is no disturbance of the general health, but complications may occur, such as erysipelas, and indeed, sometimes the lupus appears to date from an attack of erysipelas.

In the diffuse form, **L. disseminatus** (Hebra), the patches are much more numerous, but each commences in much the same way.

They 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 of the patches 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. On the other hand, 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. In these acute cases, 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 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 lupus erythematosus spots may or may not subsequently appear, develop on the skin and tissues around the joints of the hands, feet, knee, and elbow. (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 gland and of the 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 the erysipelas is severe, it aggravates the lupus disease, but complete involution of the lupus may ensue, where 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. This 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, 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.

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 when involution occurs, whether spontaneously, or as the result of treatment, there is always more or less atrophic scarring, though sometimes it is so slight as to be only in whitish streaks in the healthy skin. 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 membrane 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 and very rarely in

* 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 in the face, in the rest in 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.

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 twelve 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 lupus vulgaris. The etiology is, however, obscure for the most part. A feeble circulation is a favouring influence, and not unfrequently 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 has no pathological relation to lupus vulgaris, but is 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.

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), and 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.

* *Med. Chir. Trans.*, vol. lviii., 1875.

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. This metamorphosis of the gland elements and the surrounding connective tissue leads to the destruction of the hair 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 tubercles. In all these particulars, except the slow course, it differs from *lupus vulgaris*, to which it has some clinical resemblances.

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 lupus erythematosus of the face, while on the forearms there had been an eruption like psoriasis, which was cured with chrysarobin ointment, but left scars.

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, the thick, yellowish, horny flakes which generally cover the patch, the central depression, and often the atrophic scarring which may affect the pulp of the finger, and render it conical and bloodless.

Although, as before said, ordinary inflammations do sometimes seem to be the exciting cause of the lupus inflammation, these compound terms are better avoided. 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 duration, are distinguishing features, and there is no scarring in acne rosacea.

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.

Prognosis.—In the chronic limited patches, although often obstinate, great improvement can always be obtained, and a cure sometimes effected, but not 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. 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 believe in phosphorus $\frac{1}{50}$th to ^{1}th of a grain three times a day. 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, etc., and endeavouring to correct such errors, and for the rest, address myself to efficient local treatment.

Locally.—In all cases the affected part 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 adds 10 per cent. resorcin, and attributes the good effect to that drug. 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 ℥iv. 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, which 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.

Coming to stronger remedies for limited surfaces, chloracetic acid, applied with a glass rod, is a rapid superficial escharotic, and not very painful, and is spoken highly 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, 3j of iodide of potassium, and 3ij of glycerine. Carbolic acid gives a good result, but is 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, and mercurial plaster, and sometimes the spirit soap treatment, and if good results are not obtained, I try linear scarification as recommended by B. Squire, either with his or Pick's (see Fig. 30) 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 dry boracic lint or iodoform wool bound on. The division of so many vessels effectually starves the disease, and great improvement results. The operation requires repetition several times. Veiel's instrument has been improved by Pick; it 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 lupus vulgaris, and almost supersedes caustics, which are painful and uncertain in the depth of their action.

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, blepharadenititis, rhinorrhœa, or otorrhœa, joint or bone disease, etc., and probably the characteristic physique.

The most common origin for the lesion is 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 tubercles 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.

When these 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 with numerous sinuses.

Diagnosis.—This has to be made from lupus vulgaris and syphilis.

In *lupus vulgaris*, even if the other strumous lesions are present, there is an absence of the characteristic lupus tubercles, destruction, and not infiltration, being the distinguishing feature of scrofuloderma. When the two conditions are present together 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.

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, *e.g.*, ʒss to ʒj of the syrup of the iodide of iron, with a liberal diet. Locally, unhealthy fungating granulations should be scraped away with a sharp spoon, undermined skin 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 join the skin, viz., 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 tract, they have a comparatively rapid downward course of a few months at the most.

* *Viertlj. f. Derm. u. Syph.* 1879, p. 269.

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 in 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 or iodol.

Under this name also, Dr. Hebb read a paper at the Med. Chir. Soc. 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. Was this a primary tuberculosis, as Hebb considered it, or was it lupus vulgaris which had produced an elephantiasis Arabum, whose development had masked the original disease?

SYPHILIS.

Definition.—A chronic, specific, contagious, hereditary and protective, exanthematic 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

* 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.

† *Brit. Med. Jour.*, March 27th, 1886.

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 seventy-two days (Aimé Martin). 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 90 per cent. of all cases the initial lesion is on or about 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, ulna, and tibia ; 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° Fahr. in the evening, with a morning fall of 2° or 3°, 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 tubercular.

III. Especial implication of the hair follicle or its immediate neighbourhood:—
   Lichenoid of progressive severity.
   - Miliary papular or lichenoid { 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:—
   Tubercular syphilides.

VI. Extravasation of blood constituents:—
   Pigmentary syphilide (pigment only).
   Purpuric (blood).

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* This arrangement is slightly modified from one proposed by Sangster in *Lancet*, December 1st, 1883.

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, 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 while all three are not decolourized by Lustgarten's method, the supposed syphilitic bacillus is decolourized by washing in nitric and hydrochloric acid, while those of lepra and tuberculosis are not. The bacilli were found singly or in groups of two to nine or more, invariably enclosed in lymphoid cells, larger than leucocytes, which were most abundant on the borders of diseased tissue. They were straight, curved, or irregularly bent rods from three and a half to four and a half of a mm. long, and from one-fourth to three-tenths thick. With a high power their outline is slightly undulatory, and they contain from two to four equidistant oval colourless bright spores. Although this bacillus has been found by others, it is by no means certain that this is the true syphilitic bacillus, and 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*.

Lustgarten's staining method is as follows: Sections which have been hardened in alcohol are stained in an Ehrlich-Weigert solution

of gentian violet for twenty-four hours at about 60° Fahr., and for two hours at 104° Fahr.

To decolourize all except the bacilli, first wash the sections in absolute alcohol; secondly, place them in 1½ per cent. aqueous solution of permanganate of potash for ten seconds, transfer to aqueous solution of chemically pure sulphurous acid for a few seconds, when they will be in great part decolourized, then wash in distilled water again, place in permanganate solution for five seconds, and then again in sulphurous acid. When quite decolourized, which happens after the process has been repeated three or four times, the sections are placed in absolute alcohol, oil of cloves, and xylol-canada balsam in the usual way.

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 affect the epidermis, and even the subcutaneous tissue. The raw-ham colour is derived from the escape of blood-colouring matter of outwandering 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 organize 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 vascularization of the mass is obstructed, and it disintegrates, breaks down, and an ulcer is produced. Giant cells have been found in gummata, and also in tubercular, lichenoid, 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

* Neumann's investigations are not only the most recent, excepting my own, but contain a review of previous work on the subject. See *Vierteljahreschrift für Dermatologie und Syphilis*, 1885, with numerous plates.

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 bi-lateral, 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 into circles, and some others into 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 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 over-lap each other, and, from these various circumstances, the important feature of "polymorphism" is produced, so that, a polymorphic 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, changeability, polymorphism, and absence of subjective symptoms, when taken together, constitute a group of symptoms, which 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 monomorphic, 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, or in small spots about 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 on the chest and epigastrium, the flank, 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. 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. 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 eruptions of measles, rötheln, urticaria with pink wheals, various erythematous eruptions, idiopathic, symptomatic, or medicinal, if regard be had to the eruptions 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. Pityriasis 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.

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 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 appear 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-

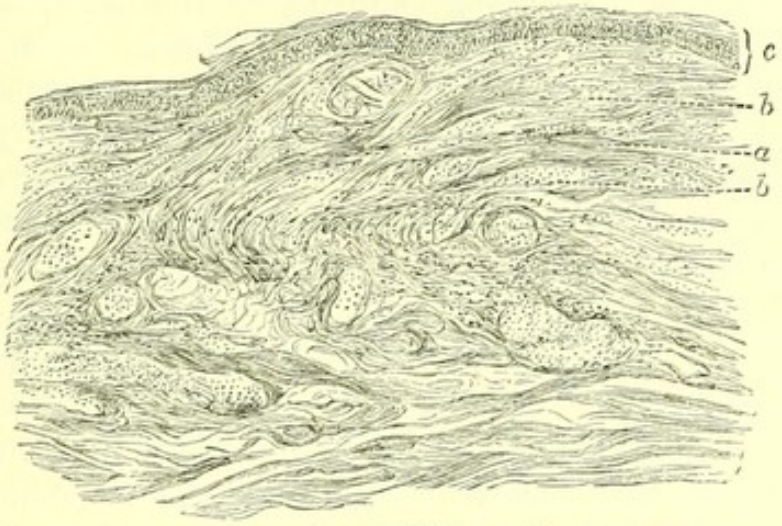

Fig. 31.—Part of a syphilitic macule. × 125.

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.

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 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, remain discrete, though often closely set, but may coalesce in parts like the lower half 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; and 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; and 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.*

Syphilo-derma 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. Both this, and the nummular form relapse more

frequently than the lichenoid syphilides; but, as a rule, the older the disease, the less extensive is the rash.

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, removes 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 palmaris* is often very like it. There is here too great thickening of the epidermis, and deep, painful fissures; but, while the syphilide 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** 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 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.

Fig. 32.—Papulo-squamous syphilide from 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.

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.

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 (Fig. 34).

Lichenoid Syphilide. There are two forms of papular syphilides,

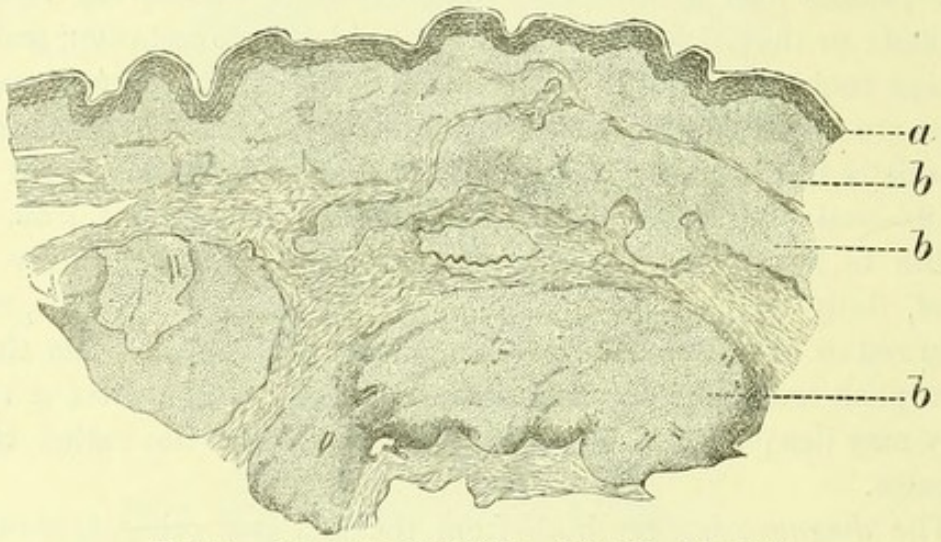

Fig. 34.—Lenticular syphilide. 2 in obj., 2 in ocul.
a, normal epidermis; *b*, dense cell masses round the blood vessels in the deep part of the corium, and uniformly diffused through the papillary layer.

large and small, 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; 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 spots, are very distinctive, and should always suggest further inquiry for the evidence of syphilis, which is invariably forthcoming at this stage.

The "**small lichenoid 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 scrofulosum, 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 scrofulosum;* the characters of the rash are identical in both, but while lichen scrofulosum is rare after puberty, and never later than thirty, the syphilide may occur at any age. Lichen scrofulosum is seldom seen on the limbs, and never on the head, while the syphilide is likely to be present in both these positions. These two conditions, of the presence of this rash in a person over twenty,* and its being 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 from the miliary papular syphilide, the inflammatory effusion being sufficient to produce vesicles or pustules on the papular foundation.

Anatomy.—The examination of the papules in the **larger lichenoid syphilide** showed that the whole process was in and around the hair follicle, but,

* 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.

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

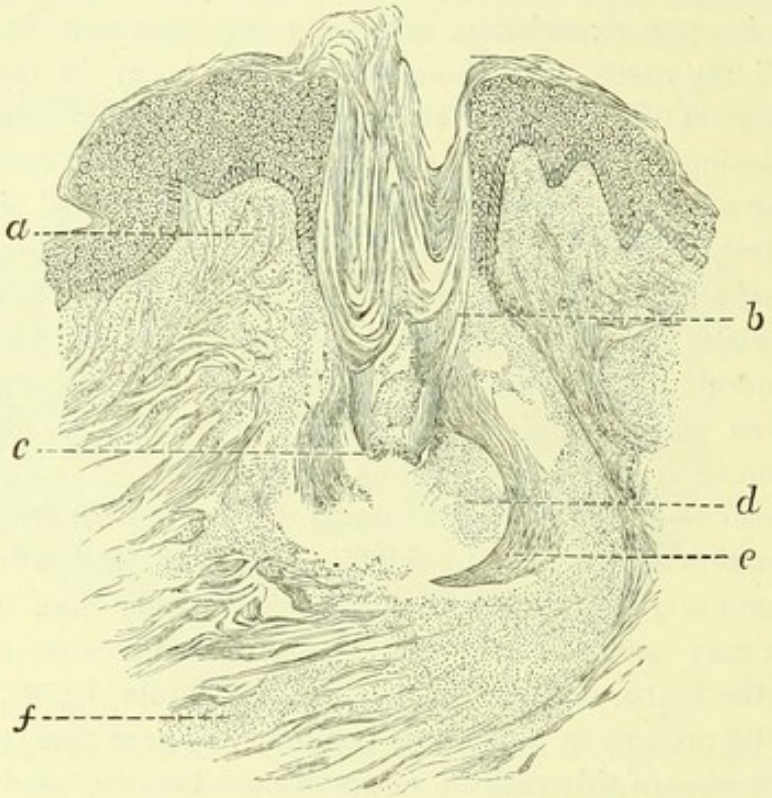

Fig. 35.—Larger lichenoid syphilide. × 125.

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.

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 deep 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. 35). 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

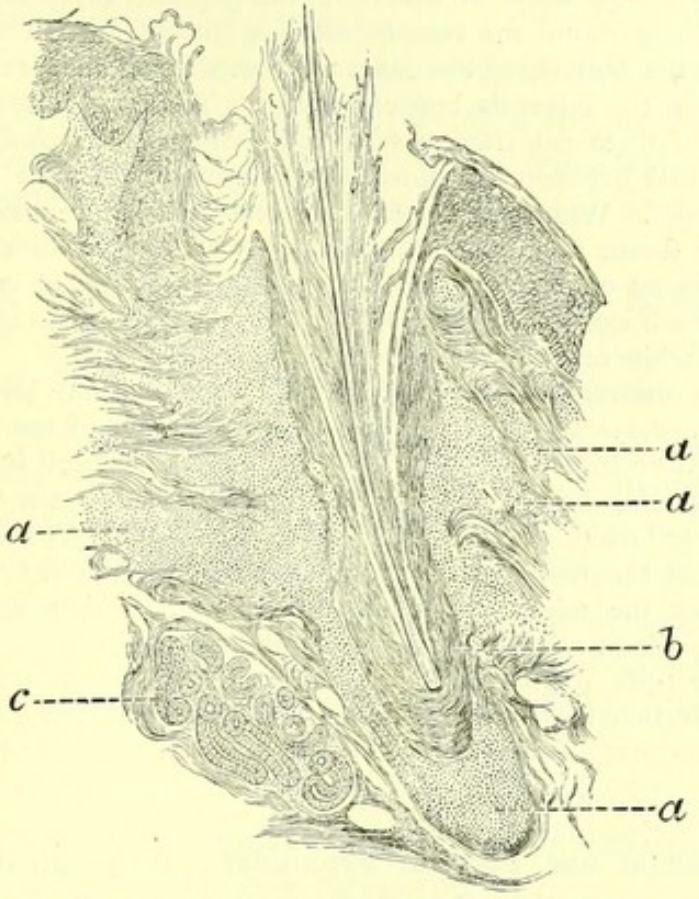

Fig. 36.—Small lichenoid syphilide. × 125.

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.

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 lichenoid syphilide** 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 (Fig. 36).

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 varioloform. 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.

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. Liveing* relates a good case of this kind, which had been refused admission at several hospitals on the supposition of its being small-pox.

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

* Fifth edition, p. 346.

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 with a severe primary lesion, and is much less common than it used to be, since improved diagnosis and treatment have made the 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 become 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 like 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, unlike rupia, is a rare eruption in acquired, occurring almost exclusively in congenital syphilis, and is scarcely admitted by some authors. I have met with one case in a married woman æt. nineteen, but unfortunately no further particulars have been preserved. It is almost limited to the palms and soles, and the contents seldom remain clear long. Its position, association with syphilitic symptoms, and amenability to mercury, are its distinctive characters.

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. 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; the pus soon dried up 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.

* Ziessl'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.

† Annie S., æt. twenty, admitted into U.C.H. September 1886. The appearance of the rash is well represented in Bateman's *Delineations of Cutaneous Diseases*, 1828, plate xliv., fig. 1, under the name of ecthyma cachecticum.

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.†

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

* Horand, "Syphilide Acnéique du Nez," *Ann. de Derm. et. Syph.*, vol. vi., 1885, p. 385.

† There is a good drawing of the eruption in Duhring's atlas.

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 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. They may coalesce into an infiltration, but the component tubercles are generally discernible, at least on the edge. They are then very liable to break down and ulcerate, especially when they are 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 tubercles and central involution, with or without ulceration, of the older tubercles, a cicatrix, more or less pigmented, results, either from atrophy or ulcerative destruction. These scars, with their tubercular 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. The ulcer, which 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 tubercles—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 tubercles or gummata are, like the superficial lesions, common in the tertiary period, but are occasionally secondary. A firm, painless, well-defined, pea-sized tubercle 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. As a rule, all this disappears in a few days.

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 tubercle 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 cicatrizes, 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.

(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 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 than in men, and seldom after the age of thirty-five. Its seat is chiefly on the

* *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, *Lecons sur la Syphilis*, also gives chromo-lithograph. Santin has also written an inaugural thesis upon it.

neck, especially at the sides ; 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.

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.

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 fourth month and onwards. The hair may also come off in round patches, like alopecia

* 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.

† *Med. Times and Gazette*, vol. i., 1879, pp. 173, 279, 501.

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 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. 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 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, chipping at the free border and 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, reattachment 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

* U. C. H., O. P., No. 69, 1880.

† For a more complete account of syphilitic nail affections see Fournier's *Syphilis Chez la Femme*, 1873, p. 467.

scales off, and forms white pits, while the outlying border of skin may get thickened, brittle, and easily bleeding from fissure.

2. Inflammation occurs; the skin round becomes swollen and dusky red, but does not go on to suppurate, 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, dactytitis syphilitica of 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 it 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 she was a year and a half old, and she 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, obstructing 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

Trousseau puts it at seven months, and Cutlerier at a year.

† Quoted by Lancereaux, vol. ii., p. 137, Syd. Soc. Trans.

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 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 late 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 seen 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.

Cullérier 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, and 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.

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 supervene 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 never seen. 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; 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 case recover under immediate mercurial treatment when the eruption was present at birth.

There is seldom any difficulty in the *diagnosis* from ordinary pemphigus; the nature of the bullæ, their position on the palms

* *Progrès Médical*, October 1880.

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 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.

Tubercular 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 tubercular 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 tubercles were scattered over the upper part of the body. These gummatous infiltrations are the only skin lesions in late congenital 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

* U. C. H., Out-patient, No. 575, 1880.

always successful, though in a few cases, after all the skin and 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.—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 anatagonize 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 tubercle 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 gallon, have been recommended for congenital syphilis, but there are better methods than this. Hypodermic, or rather injections

* 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.

deep into the muscles, in the form of three or four grains of perchloride of mercury to ℥j of distilled water, one-tenth to three-eighths of a grain being injected daily, are strongly advocated by Lewin. 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. The injections are very painful, liable to produce inflammation, induration, or abscess, at the site of puncture, besides necessitating daily medical attendance. Attempts have been made by Bamberger, Martineau, and others, to obviate some of these untoward results by using a peptonate of mercury, or the insoluble salts, such as calomel and the yellow oxide, but with indifferent success; 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. At the same time, this method meets with strong support on the Continent, and may 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 iodide, 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. 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 the teeth, and rinsing the mouth, with 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's 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 thigh and arms, the flanks, etc., changing the site of inunction frequently, to prevent local irritation, 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 more. 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 is 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 combining 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, and even colchicum, 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 treated 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 volatilization, 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. Tubercles 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 most 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. hyd. 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 ʒj, oleum olivæ ʒij.

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 plaister; 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 it 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 ℈ss to ℈j 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 to 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; *Ger.*, 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 in the south of France and Spain, and it is frequent in the northern littoral of the Mediterranean, Galicia, and some other parts of

* *Literature.*—Danielssen and Boeck, *Traité de la Spedalskked* (Paris: 1848. French translation). Report on Leprosy, by the Royal College of Physicians (1867). Vandyke Carter on Leprosy and Elephantiasis (1874). Hillis *Leprosy in British Guiana* (1881).

Europe. Several 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 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 Lepra constitutes over 50 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 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, of 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.*

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 tubercles, 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 tubercles, 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 tubercles 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 tubercles and infiltrations become fully developed, the 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. Tubercles 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

* 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 tubercles appearing on the site of a recent burn on the heel. The subsequent course was very much the same as above described.

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 tubercles 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 tubercles 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 tubercles; the ears project conspicuously, are often, even at an early stage, much thickened and covered with tubercles, 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, or even recover completely. In males the testicles atrophy, the breasts enlarge, and sexual power is lost; women become sterile, the voice gets croaking from tubercles 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 tubercles may lead to blindness. 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 tubercles 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 tubercles 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

* In John C. N., U.C.H., a mixed case, there were a few tubercles on the scalp; in Evan S., U.C.H., there were one or two on the palms.

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 greasiness, and the skin is always very greasy, with dilated sebaceous openings. The tubercles 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 tubercles 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 under twelve months, and there are only one or two doubtful instances on record of the infant being born with it. But Danielssen and Boeck record, that the parents of some affected children have stated, that they were born with bluish spots, on which tubercles subsequently developed.

Non-tuberculated Lepra is the most common tropical form, constituting two-thirds, while in Norway they number 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 produc-

mata 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, peroneal and saphenous, accompanied by a burning sensation, and tenderness along their course.* Weakness of grasp and numbness in the course of the nerve are early symptoms, and the ulnar is generally the first to suffer. 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

* 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

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. 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 ensues, and the nail nutrition is damaged so that they become like talons ; next interstitial absorption ensues, 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

* See J. H.'s case, in previous note.

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 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, except in hereditary cases, when the leprous cachexia manifestations may be 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 constitute 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 eat 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 tubercles 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 putrid, 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.

Propagation.—Intermarriage plays a certain part, and in some places, such as the Cape, Provence, Austria, and Galicia, leprosy is limited to certain families 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. 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 usually through the male parent, and the proportion in hereditary cases of males to females is three to one. On the other hand, Hansen of Norway disputes its heredity altogether, and Beaven Rake seems inclined to support him. The mixed form is the kind most frequently transmitted, and often only one member of a family is attacked. The disease may, however, be latent for many years until developed by some depressing influence, and congenital cases are rare, and, indeed, of doubtful occurrence. For these reasons many think that, like phthisis, only the predisposition is transmitted.

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 College of Physicians now admits that the question is quite an open one. There is, indeed, 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† failed to inoculate a criminal; but, on the other hand, 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.

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

* An interesting case is reported by Gairdner in *Brit. Med. Jour.*, June 11th, 1887. See also correspondence, Aug. 20th, Sept. 5th, Nov. 5th, etc., by by Beaven Rake, Jelly, and Hillis.

† *Brit. Med. Jour.*, June 26th, 1886. See also Nov. 12th, 1887, an article on the "Spread of Leprosy by Contagion," with many cases, and also Besnier s pamphlet, published by Masson (Paris: 1887).

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 tubercle 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 tubercle 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 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 tubercles, 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 organization 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 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 localized to the tubercles.

Besides the skin, mucous membranes, and nerves, tubercles 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 conduced to 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.

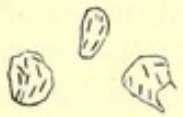

Fig. 37.—Lepra bacilli. Obj. $\frac{1}{12}$ Leitz, oil. imm. ocul. 2 in.

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 it is yet *sub judice* whether they occur in the blood, 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 $\frac{1}{3000}$ 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 tubercles, in which development is hindered by compression.

The rods may be 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. 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 tubercle or the serum obtained by pricking a tubercle 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. 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, Köbner has succeeded in producing local leprosy in the dog, and Danisch in a cat, after many failures, by placing portions of leprous tubercle 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 rodlets, 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 hitherto failed, but Bordoni-Uffreduzzi claims to have been successful with bacilli from the marrow of bone taken twenty-four hours after death (!), by using glycerine serum and gelatin peptone.

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 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 an 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.

* *Brit. Med. Jour.*, July 18th, 1885,—a good paper with *résumé*, and many references.

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 tubercles 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 tubercles have their special seat of predilection ; those of syphilis are indiscriminate, and may come where leprous tubercles never, or rarely appear. Moreover, the tubercles 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.

From *lupus* tubercles those of leprosy are distinguished by being symmetrically disposed to some extent, by their being more persistent, and by their not coming on the scalp.

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.

Prognosis.—The disease is almost invariably fatal, and even though existence is prolonged for many years, it is at best a miserable one.

The duration varies considerably, 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, the absence of serious complications, the tubercles shrinking, and the febrile exacerbations occurring at long intervals. Diffuse infiltration is better than many tubercles, 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; seldom 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 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

* 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.

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. 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 sulphoichthyolate 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 chrysarobin, 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. He also gave salicylate of soda from seven to fifteen grains three times a day. Pyrogallic acid also answered well in his hands.

When the febrile exacerbation is present, full doses of quinine should be given, gr. 5 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 be but little 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 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 is taken, there having been only a solitary† case

* *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.

† Semon's and Payne's case, *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

in England, and he a South American. A few other cases have been observed in Italy and at San Salvador in Brazil, where it is said to be not very rare, and a case from Egypt has been reported by S. Davies.

Symptoms.—The disease affects almost exclusively the skin and mucous membrane of the anterior nares and upper lip, and consists of flattish, isolated or coalescent tubercles or raised plaques, imbedded in the cutis vera, and sharply defined from the normal skin. It 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 the growth 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, never to spontaneous involution, and 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. 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 in different instances the vocal cords, soft and hard palate, and pharynx, have been affected; there has also been cicatricial-like sclerosis, but with very little tendency to tumour formation, in these parts.

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.

Etiology.—Both sexes are 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 giant cells; 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. 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.

Pathology.—On the whole these investigators regard the infiltration as *sui generis*, whose nearest relations are with granulation tumours, such as are seen in lupus, tubercle, syphilis, and leprosy.

Diagnosis.—The stony hardness, slow painless growth without disintegration, and its limitation to the anterior nares, are pretty characteristic. In some of these respects it is imitated by syphilitic tubercles, 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 might 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 accom-

* 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 decolourization with Gram's iodine solution.

plished, the disease speedily recurring after excision, 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, and 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 plaister were introduced into the nostrils. Nasopharyngeal 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.—χηλὴ, 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; 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. Or it may undergo involution, either partial or complete; this I have observed in 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 older 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 spon-

taneous 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, Kaposi says that they are arranged in rows parallel to the ribs; but this is certainly not always the case. When small they may be imbedded in the skin, and only perceptible to the touch.

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. 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.

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 before 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. 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, though it could not be absolutely disproved. 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 con-

* In a case of Schwimmer's, p. 568 of Ziemssen's *Handbook*, there were 105, but it is not stated whether it was scar keloid or not.

† 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.

tusions, frictions, or blisters in which there is no cicatrix; so that it is evident, that the origin of many so-called false keloids may be overlooked, and they may erroneously be considered to be spontaneous.

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 multiple fatty tumours, and appearing on the site of acne and revaccination scars, and a case is reported, in which numerous small keloids developed on psoriasis plaques on the chest, to which liniment iodi had been applied.

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 Langhans,* Warren jun.,† and Babes; 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 are said to be absent, and Kaposi describes the same dense connective tissue, with few nuclei and vessels, as in the spontaneous form.

The tumour I examined ‡ had certainly not begun to form more than three

* Virchow's *Arch. Dritte folge*, bd. xl., p. 334, with good *résumé* of previous observations.

† *Akad. der Wissenschaften zu Wien. 2 sitzingberichte abtheilung*, 1868, p. 413.

‡ *Brit. Med. Jour.*, September 18th, 1886, p. 544.

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 vascularized, loose, connective tissue, with the vessels dilated, and the fibres running transversely to the 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

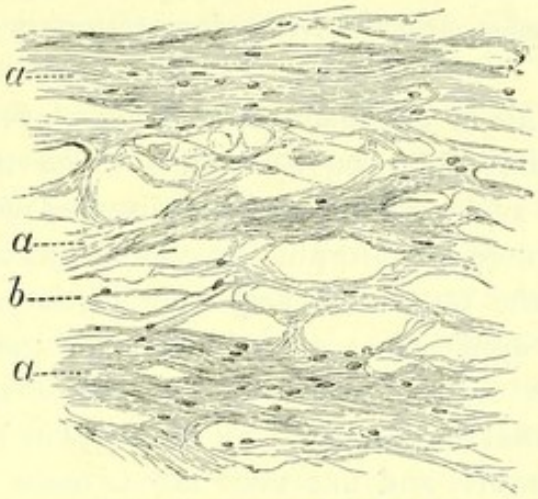

Fig. 38.—Recent scar keloid.

a, *a*, *a*, bundles of delicate fibrils of new connective tissue; *b*, nuclei scattered through the connective tissue bundles.

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 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.

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.

Prognosis.—Spontaneous involution is not so rare as 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 cocain 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.

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.

* *Literature.—Medico-Chirurgical Trans.*, vol. lvi., Murray's and Pollock's cases, with coloured plates and photos; ditto, vol. xxxvii., p. 155, V. Mott's cases, 5 cases with 2 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. 137, Fritsche's. *Hutchinson's Lectures*, "Rare Diseases of the

According to Hutchinson, the soft * pedunculated vascular and mole-like excrescences, and their relics, in the shape of the empty hernia-like sacs of skin, from which the contents have disappeared, which are frequently seen upon the face and between the shoulders, and less frequently elsewhere, chiefly in elderly people, are all examples of fibroma. This form of the disease is very common, but this is not the kind to which the term is usually applied, which is a very rare condition, only amounting to 9 in 16,863 American cases, and 1 in 10,000 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; 2. Dermatolytic tumours with small tumours like the first variety; 3. Dermatolytic tumours 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

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.

* When not larger than a pea they are usually called **Acrochordon**, less correctly "soft warts," the "verrues charnues" of the French. Fibroma simplex would be a good term for them.

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 limbs, 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.

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 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 cases,‡ 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

* In Walter J., U.C.H., there was a tumour on the buccal mucous membrane, and two on the side of the tongue.

† 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.

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 grew older. The parents were cousins, and their early married life was under bad hygienic conditions.

In the **Dermatolytic** cases, 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, 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, and Royes-Bell.

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, in which 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

* John Bell, *Principles of Surgery*, 1808, vol. iii.

† Alibert, *Monographie des Dermatoses*, p. 796 (Paris: 1832), with plate.

‡ Virchow, *Die Krankheiten Geschwulste*, vol. i., p. 325.

chiefly the right, and over nearly the whole back and buttocks; the skin was immensely thickened with irregular lobulated masses of confluent tumours of the ordinary molluscous tumour 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 talipes equinus, but was fairly intelligent. The disease was not perceived much at birth, but began to develop when five years old, and has 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 is then called **Dermatolysis**,* or lax skin, and 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 breaks out again at intervals ever since. The buttocks began to increase in size two years after the accident, beginning at the sinus opening, and have 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.

* Valentine Mott called these tumours Pachydermatocele, but this term has also been used for elephantiasis arabum.

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 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. 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 a few years ago. Laxity of the skin after distension is often seen in multipara, both in the breasts and abdominal walls, from obesity, etc., and to avoid confusion, it would be better to restrict the term dermatolysis to these, while the hypertrophic cases might be called **Fibroma pendulum.**

Etiology.— Heredity‡ and, occasionally, congenital predisposition are the only positive causes assignable.

Fibroma occurs in both sexes and in various races, beginning 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.

The "dermatolysis" condition 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

* Shown at Clin. Soc. by Messrs. Ballance and Hadden, January 25th, 1885.

† Quoted in John Bell's *Surgery* 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 them, 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.

cause cannot be traced in most instances. 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 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

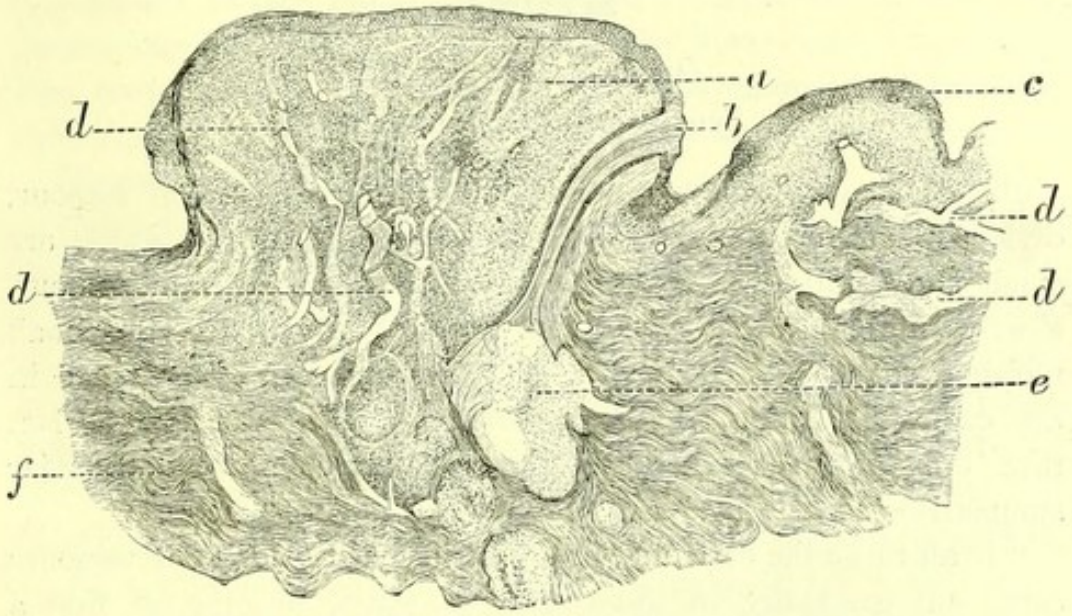

Fig. 39.—A pin's-head-sized tumour of fibroma × 50, composed of gelatinous tissue.

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.

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 there have been several successful operations even with very large masses, where complete ablation has been practised, without recurrence, such as Mott's, Kosinski's (35 lbs.), Pollock's, Stokes', John Wood's cases, and others.

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 four cases of the small multiple variety are on record,—by Verneuil, only discovered in the cadaver, Besnier, Arnozan, Brigidi and Marcacci. The last three only, furnish the clinical features, therefore, which Besnier summarises as follows:—

"In all three the patients were over fifty years old. The tumours came out gradually in the course of years, forming at first a lenticular spot, then a papule, a red tubercle, and, in the Italian case, an ecchymotic spot. In my own (Besnier's) case they were extremely painful on pressure, and in Arnozan's and Vaillard's the pains were spontaneous and paroxsymal, depending on the mode in which the nerve fibres were involved. The tumours developed in succession without any symmetrical or systematic arrangement, they were chiefly lenticular, pea or bean-sized, growing very slowly, and were either pink, red, or normal in colour. They were quite harmless, could be excised without any fear of recurrence, and never ulcerated."

* Besnier, "Les Tumeurs de la Peau, les Dermato-myomas," etc., *Ann. de Derm.*, 1880, p. 25, the best account of the subject. *Ann. de Derm.*, vol. vi., 1885, p. 322. He gives the references for all the above-mentioned cases except Hardaway's.

Hardaway * reports a case of multiple myomata in which the tumours were aggregated into a patch on the right back, four and a half inches long and two and a half inches wide, or else in lines and streaks, and varied from a few lines to a hazel-nut in size. They were sessile, isolated in the skin, and freely movable, and the epidermis over them was unaltered. The whole patch was of a reddish colour, and the larger tumours looked like moles. The patient was subject to nocturnal paroxysms, lasting two or three minutes, of most severe neuralgic pains in the region of the tumours. Sometimes he was free from these attacks, of which he had only three on each night, for two or even seven nights; but as a rule, they came on every night. Deep pressure brought on momentary severe pain. Microscopic examination showed that the tumours consisted of smooth muscular fibres, with large nuclei. The muscular coat of the blood-vessels was enlarged. Hardaway points out the clinical resemblance of these cases to neuromata.

Diagnosis was made by exclusion.

The solitary tumours are more common, and have been described 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, are contractile, 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**.

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 affected the skin primarily are on record, viz., by Duhring and Kosinski,

* *Amer. Jour. Med. Science*, 1886, p. 511, with woodcuts, discussion on it reported in *Amer. Jour. Cut. Dis.*, vol. viii., p. 315.

the "painful tubercles of Wood and other so-called instances of neuroma and fibro-neuroma of Recklinghausen, Köbner, and others being really subcutaneous; and in Recklinghausen's and Atkinson'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 scapula 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 tubercles, 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 tubercles was normal when pain was absent. The tumours were not painful at 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, the 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 tubercles. 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, and this was followed by gradual subsidence of the tumours.

NÆVUS VASCULARIS.

Synonyms.—Nævus vasculosus; Nævus sanguineus; *Ger.*, Gefassmal.

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

* "Case of Painful Neuroma of the Skin," *Amer. Jour. Med. Sciences*, October, 1873.

† "Neuroma Multiplex," *Centralblatt für Chirurgie*, No. 16, 1874.

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, as to the frequency of their occurrence and 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.

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 in 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. 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. The methods employed to remove nævi come into the following categories:—1. To produce plugging within the vessels by exciting inflammation or by electrolysis; 2. To destroy it 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 or electrolysis 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 is 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.

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; cicatrization 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 Pacquelin's 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, either ligature or the galvano-cautery.

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 red 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

* A still more general distribution is recorded by Maudelbaum of Odessa (*Viertj. f. Derm. u. Syph.*, vol. ix., 1882, p. 213).

commenced when five years old. Fresh dilatations were still appearing. They gave a curious mottled look to the affected parts. 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 are sometimes seen on the neck and chest, and other parts; they are most common in women and children with delicate skins, occasionally follow a slight injury, and have also been seen after lightning strokes,* but, as a rule, are apparently spontaneous. Another form, seen chiefly in the degenerated skins of dirty or old people, consists in 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 that condition, as in people much exposed to the weather, such as seamen, coachmen, etc. It may occasionally occur as the result of 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.

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 already described under acne rosacea.

* See a case by G. Boner of Duns, reported in the *Lancet*, with woodcut of telangiectases on the arm only.

LYMPHANGIECTODES.*

Deriv.—λυμφαγγία, lymph-vessels ; ἔκτασις, dilatation.
Synonyms. — Lymphangioma (S. Jones) ; Lupus lymphaticus (Hutchinson) ; Lymphorrhagica pachydermia (Œdenius).

Definition.—A localised disease consisting of closely crowded, deep-seated vesicles connected with the lymphatics.

This is a very rare disease, which has been described chiefly by English authors. Sydney Jones was the first, then Tilbury Fox, Hutchinson, who has had four or five cases, Walsham, Hayes, and myself (two cases). Œdenius and Köbner have each described a case. Tilbury Fox's case was complicated with venous nævus, and Köbner's was described as a case of cavernous angioma, lymphangioma, and neurofibroma ; the others were uncomplicated, and resembled each other very closely.

Symptoms.—The disease consists of minute, deep-seated vesicles, 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, neck, deltoid and scapular regions, the arm, thigh, and trunk.

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 recognizable, 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

* *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. 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.

injury. In one of Hutchinson's unpublished cases, nearly all the vesicles had vascular tufts obscuring the vesicular character. 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 that of Dr. Hayes, the disease was on the left side of the nape.

Etiology.—Most of the cases have occurred in males, Walsham's, Hayes', and one of my own being exceptions. All have begun in very early childhood. Walsham's was doubtfully congenital; one of mine began when six months old; all the others were two years and upwards.

Pathology.—All are agreed that the disease is of lymphatic origin, and that the main feature is dilated lymphatic vessels, but the cause of this is unexplained. Hutchinson's view that it is a kind of lupus is not generally accepted, 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, and Hutchinson jun. (see references). Sangster found hypertrophy of the rete pegs, and flask- and funnel-shaped spaces of various sizes, both in the superficial and deep part of the corium. He regarded those of the deep part as probably dilated lymphatics, while those in the superficial part were lacunar, perhaps due to rupture of overdilated lymphatics. He refers to the cases of Œdenius * and Sydney Jones,† the latter with report on microscopical appearances by C. Stewart, as confirming his own observations.

Diagnosis.—Its commencement in early childhood, its slow but continuous progression, the congeries of small, thick-walled vesicles in the cutis, their straw colour, with vascular striæ, and their limitation to one region, are the most distinguishing features, which,

* Quoted in full by Busey, *On Occlusion and Dilatation of Lymph Channels*, pp. 95, 96.

† *Path. Soc. Trans.*, 1874-5, p. 233.

once seen, could scarcely be mistaken for those of any other affection. The differences between this and the closely allied *lymphangioma cutis* of Kaposi are pointed out under that disease.

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 up to a month after, but whether there was permanent obliteration I cannot say.

LYMPHANGIOMA TUBEROSUM MULTIPLEX.

Under this term Kaposi * described the only case of the disease then on record, another has since been published by Pospelow,† and a third by Van Harlingen ‡ which resembles the first two in many respects, but presents many differences. Hebra's case was an unmarried healthy woman, æt. thirty-two, in whom the affection had existed from childhood. The tubercles 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 tubercles 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 tubercles were slightly painful, and pretty uniformly distributed without

* Hebra, vol. iii., p. 387; Hebra's *Atlas*, lief. x., tafel 6.

† Pospelow, *Viertelj. für Derm. u. Syph.*, vol. vi., 1879, p. 521.

‡ Van Harlingen, quoted by Duhring (third edition), *Amer. Derm. Soc. Trans.*, 1881.

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 tubercles. Pospelow's case was also 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 was very much like Kaposi's, but the small tubercles 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, from a millet seed to a hazel-nut in size. They disappeared into the skin on pressure, reappearing, however, directly; and although quite 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.

Anatomy.—Anatomically a vertical section appeared riddled with round, oval, and slit-like holes, which were lined with nucleated epithelium, and were demonstrably 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.

Diagnosis.—The only disease it at all resembles is *lymphangiectodes*, but the lesions of lymphangioma are larger, less obviously vesicular, with no special tendency to form groups of closely set vesicles, and are scattered irregularly all over the body, while in lymphangiectodes the lesions are distinctly vesicular, closely aggregated, in small groups, and the groups tend to form a single group, or at all events are limited to a single region.

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.

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. Far more common and characteristically skin cancer are epithelioma and its congener rodent ulcer. 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 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 may extend over the whole or greater part of the thorax, 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 embedded in the subcutaneous tissues and deep part of the corium, where they

* A well-marked instance is published, with plates and histology, by Morrow and Robinson, in *American Jour. Cutan. and Ven. Dis.*, vol. ii., 1884, p. 1.

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 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.

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 limited to the nipple and areola in women from forty to sixty years, and resembles 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

* Virchow's *Arch.*, vol. lxxii., p. 372, with plates.

† *Literature.—St. Bart.'s Hos. 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.

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 recognizably cancerous; in H. Morris's case it was six years and in Duhring's case ten years. I have met with a precisely similar condition on the scrotum of a man æt. forty-seven. After remaining as a raw surface for two years, nodules developed in the centre of the ulcer.

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 years, in some cases, before the cancerous nature declared itself on 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.

Anatomy.—The anatomy has 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 lymphoid 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.

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 differences between Paget's disease and eczema, which have been pointed out by McCall Anderson and others, begin to be recognizable.

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 characterize 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.

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 recognized 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 boracic 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.

EPITHELIOMA.*

Synonyms.—Epithelial cancer; Cancroid; Carcinoma epitheliate; *Fr.*, Epithélioma; Cancroïde; *Ger.*, Epithelialkrebs.

Definition.—A malignant ulcerating new growth of the skin and mucous membranes, characterized 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 and (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 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

* *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*, Eng. ed., 1882, vol. i., p. 257. *Cancerous Affections of the Skin*, Thin, 1886.

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 deeper 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. 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 and other forms of papillary hypertrophy; and, as in 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, are also 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.

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 embyronic, 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.

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* Paget, *loc. cit.*, p. 722, a case in which the disease began in a pigmented mole.

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 down-growth 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, *à 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 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 tubercles 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.

Since epithelioma so often starts from a *wart*, it is important to recognize 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 elsewhere, 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 be 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 ℥j 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 contra-indicate 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.

RODENT ULCER.*

Synonyms.—Jacobs' 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 Jacobs 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 tubercle, which the patient calls a "wart," but the surface is smooth, and it is a brownish-red, solid,

* *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, 1882; Hume, *Brit. Med. Jour.*, January 5th, 1884; Paul, *Brit. Med. Jour.*, May 2nd, 1885.

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, very slowly it may be, but surely, 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 there is new growth, varying in extent, 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 cicatrization sometimes occur when the ulceration has actually eaten away the diseased edge. This cicatrization 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; in these cases there may be some healing in one part and ulceration in another, or even temporary cicatrization 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 cicatrized surface.

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.

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 of a girl, in whom it began when she was eighteen. Local irritation of the apparently quiescent 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, Tilbury and Colcott Fox, Sangster and Hume, from the hair follicles.

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 epithelioma." This seems to be a rational and probable view of the matter. The greater part of the growth, however, is made up of granulation tissue, the epithelial proliferation being comparatively moderate.

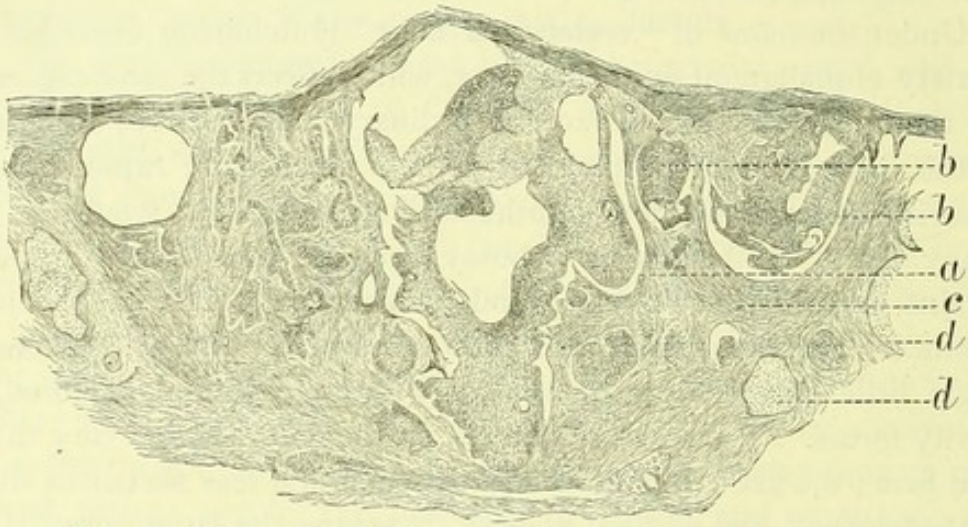


Fig. 40.—Rodent ulcer in the "wart" stage. Obj. 2 in., ocul. 2 in.

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.

The cells of rodent ulcer are, however, undoubtedly smaller than those of even 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 is 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

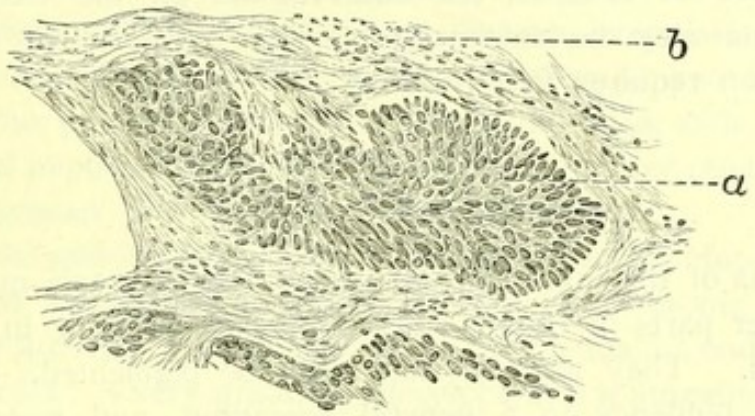


Fig. 41.—Rodent ulcer. A portion of Fig. 40 under a higher power. Obj. ⅛ in. Ross, ocul. 2 in.

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.

new growth is less, and it then becomes difficult, sometimes impossible, to speak positively as to the nature of the 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.

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 Pacquelin'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 the use of caustics, the observations on the treatment of epithelioma may be referred to. The "crateriform ulcer" of Hutchinson requires free excision.

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.

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,

* Perrin, *De la Sarcomatose Cutanée, Thèse de Paris*, 1885.

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 hempseed, 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 generalization 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. Dormer, Hardaway, Köbner, etc. The pigmentation is due to hæmorrhages into the skin, and Perrin therefore places this form among non-pigmented sarcomas.

Kaposi thus describes it: "It occurs chiefly in middle-aged people. The tumours begin simultaneously on both surfaces of the hands and feet, especially the palms, spreading up the limbs, and only reach the face and trunk in two or three years.

"They are roundish, from a shot to a bean in size, reddish brown or bluish red, irregularly discrete, in small or large groups, and the affected parts are painful and tender, thickened, stiffened, and distorted from irregular swelling; the tumours never ulcerate, but may collapse and disappear, leaving pigmented scars, or where they are in patches only, the centre undergoes involution.

Those on the trunk and face may disintegrate at the surface, and expose a blood-infiltrated tissue." Marasmus, bloody diarrhœa, and hæmoptysis close the scene in from three to five years from the onset, and, post mortem, similar tumours are found in most of the viscera, especially in the descending colon, where they tend to slough.

Anatomically, they are small-celled sarcomas, containing free pigment granules, and small hæmorrhages.

They may be mistaken for the palmar and plantar scaly syphilide at the commencement, and later, for the tubercles of lupus and lepra.

The disease has been invariably fatal, but Köbner's* treatment by hypodermic injection of liq. arsenicalis, might be tried.

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 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 hazelnut. 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 hempseed- 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

* *Berlin Med. Wochenschrift*, 1883, No. 2. See p. 525.

with a few fresh tumours on the cheek, and enormous enlargement of the submaxillary lymphatic glands. The ultimate fate 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 (Daucherz, 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-sarcomas; 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

* Perrin, *loc. cit.*; good analysis by Brocq, in *Annal. de Derm. et de Syph.*, 1886, vol. vii., p. 228.

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 Hartingen); 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 bouton, or pian of the moluccas; in his 1832 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

* *Literature.*—Vidal and Brocq, "Mycosis Fungoïde," *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.*, 1885, vol. xii., p. 123, with coloured plates, and "Hochsinger u. Schiff." in vol. xiii. (1886), pp. 361, 389. Payne, "Granuloma Fungoides," *Path. Trans.*, 1886, vol. xxxvii., p. 22, with coloured plates and partial bibliography; Swinford Edwards' case is in the same vol., p. 468, as "Round-celled Sarcoma of the Skin." Tilden, "Mycosis Fungoïde," *Boston Med. and Surg. Jour.*, Oct. 22nd, 1885, p. 386,—a good account and full bibliography.

† *Med. Times and Gazette*, Feb. 17th, 1877, p. 169.

under consideration, as an example of yaws in a man who had never resided out of England. Subsequent French writers, especially Bazin, Hardy, and 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 recognize it, some half-dozen cases have been shown at the Dermatological Society, one under my own care. 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, or lichenoid eruption precedes the tumour or fungoid stage. The eruptions are widespread, with or without scaliness, and tend to generalize, but vary in course.

In the other, the tumours appear without antecedent lesions, may be single or multiple, but occupy a limited area, do not generalize, 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 so-called eczematous period 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,

* Kaposi, in a recent paper (April 1887), divides this into two forms—(1) those cases which begin as a scaly eczema, and itch severely; (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.

the tumours form on the healthy skin as well. They 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 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 Amici). The total duration varies from six months to five, or even eight, years. Bazin alone, records a 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 never 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.

Etiology.—Very little is known under this head. Tilden found from the analysis of thirty cases twenty-three males to seven females; three-quarters of the patients were over thirty years old, 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

* Kaposi's case of lymphodermia perniciosa is an example.

† Swinford Edwards' case illustrates this form.

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 agrees, 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

Fig. 42.—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.

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, 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.

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 or a psoriasis.

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 up 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.*

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 eached 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 never implicated.

Prognosis.—With the single exception of Bazin's case, the result has invariably been fatal, the extremes being nine weeks (Gaillard) and eight years, the wide-spread 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.

In a doubtful case of my own, mercurial ointment rubbed into the tumours and iodide of potassium given internally produced marked improvement, but did not cure ; but there was no other evidence of syphilis.

YAWS.*

(Native word for strawberry.)

Synonyms.—Framboesia (*Fr.*, Framboise, a raspberry); Pian; Parangi (Ceylon); Amboyna button; Coco (Fiji), etc.

Definition.—An endemic specific and contagious disease, characterised by raspberry-like tubercles, 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; in Madagascar and the Mozambique extensively; in Ceylon but rarely; in Hindustan; 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. 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, 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, Nichols, and Bowerbank in the West Indies, Kynsey of Ceylon, MacGregor of Fiji, Charlouis and French colonial surgeons, that we owe our present knowledge of it.

Symptoms.—According to Kynsey, the disease, as seen in Ceylon, passes through four stages; first, a stage of incubation, lasting from two weeks to two months, without any special symptoms; second, a stage of invasion with febrile symptoms, and the onset of the eruption in from two to eight days; third, the complete evolution of the disease in successive crops of eruption, lasting

* *Literature.*—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 Parangi 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.

several months; and fourth, the period of sequela, which may cover six or eight years.

The premonitory stage is often slight in adults, but is well-marked in children, with febrile symptoms such as are common to most acute exanthems, but often with pronounced gastric disturbance. These symptoms remit before the eruption, which occurs in one to two weeks, preceded by enlargement and tenderness of the lymphatic glands, and, in the negro, by dulness, and branny desquamation of the skin. The eruption consists of pin's head- to lentil-sized, slightly elevated papules, on a broadened base, which, if situated on the lips, look like a commencing herpes; in a few days these papules enlarge, and the epidermis splits and curls off from the centre towards the periphery, exposing a yellowish point, which looks like a small pustule when the cuticle first cracks over it, and, as it is more developed and exposed, a flat, moist, red or pink tumour comes into view, not looking like a raspberry unless irritated. It is from a split pea to a nut in size, round as a rule, sometimes oval or uniform, occasionally in circles enclosing healthy skin (**ringworm yaws**), but not irregular in outline as long as it is discrete, though several may coalesce into large irregular masses half-an-inch thick and several square inches in surface area, or into an apple-sized tumour. These large tumours are sometimes called the "mother yaws," and may remain and ulcerate after the small ones have disappeared. The surface of the tumour is covered with a thin, yellowish, foul-odoured discharge, which dries into scabs, and then will, as the tubercle enlarges, if left undisturbed and exposed to the air, gradually form rupia-like crusts; but in moist positions, such as the mouth, nostrils, and anus, there are no crusts, and they may resemble mucous tubercles. These tubercles are all fully developed in from two to four weeks, and will then in an ordinary case remain stationary for months. A characteristic feature is that they are not tender, except when pressed firmly; only under bad treatment, external irritation, or depressing influences, and in enfeebled children or constitutions, do they break down and ulcerate, involving both the adjacent soft parts and the bones. As a rule, they gradually dry up, shrivel, and fall off, leaving a dark stain on the negro and a lighter spot on a fair skin, which also eventually disappears, the lymphatic enlargement subsiding before the involution begins.

The disease, under favourable conditions, always tends to recovery in from a few months to a year, though relapses and sequelæ may prolong it for some years; the eruption may be limited to a few tubercles, or spread over a wide area, the favourite positions being near the apertures of the face, viz., the eyes, nostrils, and mouth, round which they may form a complete ring, and also round the anus and pudenda, and occasionally inside the vulva; also on other mucous membranes, such as the cheeks, gums, and nostrils. The other more common positions are the palms and soles, often affecting the nails, the axillæ, neck, and limbs, and there are few, if any, parts of the body which are absolutely exempt. Bad cases lead to death by exhaustion, from the extent of the eruption, which breaks down into deep, rapidly spreading ulcers, and the constant discharge of these and the disintegrating tubercles; or, death may occur from pyæmia, septicæmia, or intercurrent inflammations. Except under such conditions, the internal organs are unaffected, and it is seldom fatal if properly treated. Should recovery ensue from the severe form, which is always due to the abuse of mercury, horrible distortions and deformities are left, from the contraction of the cicatrices and the caries of the bones. On the other hand, cases may be of so mild a character that "the initial papules only acquire a yellow tinge, sink to the level of the surrounding skin, and, when extending in one direction, generally heal at the opposite, this later process being indicated by slight depression and pigmentation of the skin" (**lupoid variety** of Kynsey). There is no discharge or exudation; and after healing there is no loss of substance or abrasion of the cuticle.

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; 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 parangi are adverse to its being inoculable. The disease is protective 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, *sui generis*, and not dependent in any way on syphilis, as has often been asserted. No micro-organism has as yet been shown to be the morbific agent, but doubtless such will be found.

Anatomy.—The anatomy has been investigated by Charlouis, Pontoppidan,* Paulet, and Ferrier. 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 papules, which enlarge to tubercles, over which the epidermis cracks, curls off, and 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 *parangi* of Ceylon from West Indian yaws, but the supposed distinctions break down on close examination. The differences between yaws and *Oriental boil* are given under the latter disease. The localisation of the symptoms to the mucous membranes and the skin, when yaws is not injudiciously treated, would distinguish it from *syphilis*, and the skin lesions do not correspond with any syphilide except in the resemblance of the crusts to those of *rupia*, but rupia begins with a bulla, and yaws with a solid tubercle.

Treatment.—Improved hygienic conditions are always most important. The most careful cleanliness, and nutritious but unstimulating diet, tonics, and, locally, disinfectant applications, carbolic or boracic acid lotions, and diluted nitrate of mercury ointment, are recommended by Imray, who also suggests, that at first, sulphur

* *Viertlj. für Derm. u. Syph.*, vol. ix., 1882, p. 201.

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.

Probably iodoform and iodol or black wash would be efficacious. Nicholls says that mercury cures some, and that in many, especially where the mucous membranes are involved, iodide of potassium makes the symptoms disappear; but all are agreed that unless mercury is given with the utmost care it aggravates the disease, and leads to its worst manifestations; it is probably rarely advantageous to give it, though it is the main ingredient in nearly all the yaws specifics according to Bowerbank.

VERRUGA PERUANA.*

Deriv.—*Verruga*, Span. 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 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 consists

* *Literature.*—Hirsch, *loc. cit.*, vol. ii., p. 114, from which this account is taken.

† In *Lancet*, November 17th, 1883, Dr. de Havilland Hall describes a peculiar disease met with in 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-eighth day, and died on the thirty-eighth.

of lentil- to pea-sized, raised spots, which develop into cylindrical, conical, or hemispherical tumours, from a raspberry to a pigeon's egg in size. The consistence is soft or elastic, according to the rate of development, and *the surface is tender.* 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 abundantly on the extremities, face, scalp, and neck, sometimes on the palms and soles, but rarely on the trunk. 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 tumours 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.

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.

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 tubercle, a scab, and under the last a sharply-punched-out ulcer.

* *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.

This disease is common in certain districts of tropical and subtropical climates from 23° to 45° N., and from 15° W. to 20° 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, and occurs chiefly on 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. 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 cicatrizes, 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 for years. Secondary complications may occur, such as lymphangitis or erysipelas, and glandular enlargements, and it is only in these, or when it occurs in leprotic or otherwise cachectic individuals, that any serious symptoms arise. After cicatrization, the scar may be very disfiguring, and by contraction, produce ectropion, etc., on the face, and cripple the joints when on the limbs. Recurrences are very rare.

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 independent of the nature of the soil. 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 Dépéret 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 that they have described, and not, therefore, parasites at all.

Dépéret, 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

* "Zur Anatomie und Ætiologie der Orient beule," *Viertel. f. Derm. und Syph.*, vol. xiii., 1886, p. 805, gives a good summary of previous investigations on these points.

was produced, the symptoms were very different from Oriental boil. Paltauf's inoculation experiments were also negative. On the other hand, Geber,* who investigated the matter at Aleppo, believes that it is not a specific disease at all, but that it is a medley of syphilitic, lupus, 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 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 in the cachectic, and when irritated. 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 come early under treatment.

Treatment.—In the early or "mosquito bite stage," Murray recommends the actual cautery to completely destroy it; when available, Pacquelin's or the galvanic cautery would be the most

* *Archiv. f. Derm. u. Syph.*, 1874, heft 4.

convenient means for the purpose. When already an ulcer of some size, caustics, such as caustic potash, nitric acid, or the fuming acid nitrate of mercury, solid nitrate of silver, or pure carbolic acid, are useful; after destruction of the diseased tissue, the ordinary treatment for simple ulcer is sufficient, *e.g.*, carbolized or boracic lint, or corrosive sublimate lotion, under oiled silk. The prophylactic treatment is to avoid the infected water, both for washing and drinking, unless it has been boiled. Dr. G. Ranking* 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 cicatrization in large ulcers.

* *Lancet*, August 27th, 1887, p. 413.

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 phenomena 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, produces more or less discomfort, and in hydrophobia, *e.g.*, 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; simply there is 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 erythrometalgia; 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.

Treatment must depend upon the cause. Where no disease of the

nerve centres nor 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 localized 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." 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.

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, is 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 localized 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, 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; and kidney diseases, such as albuminuria and chronic Bright's, and diabetes mellitus.

Ovarian and uterine disorders and pregnancy sometimes originate it. In the last, when it has occurred, 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 bowels, 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 urethitis, 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 and 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. hye-*

malis), on which Duhring * has written a paper. He considers 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 insect, 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 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

* Duhring, *Phil. Med. Times*, Jan. 10th, 1874.

all cases being 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. Alkalies, especially bi-carbonate 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 of a grain of pilocarpine is said to give as much as a day's relief to 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 ʒj 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 gelatin ; and sulphide of potassium, are most frequently successful.

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. Boracic 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 to ʒiv 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 boracic 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 ℥j 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.

Morris strongly recommended cocain 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 bed-time, 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, one in sixty, saturated solutions of boracic 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

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 both 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, cocain, 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, non-inflammatory as in sudamina, or with

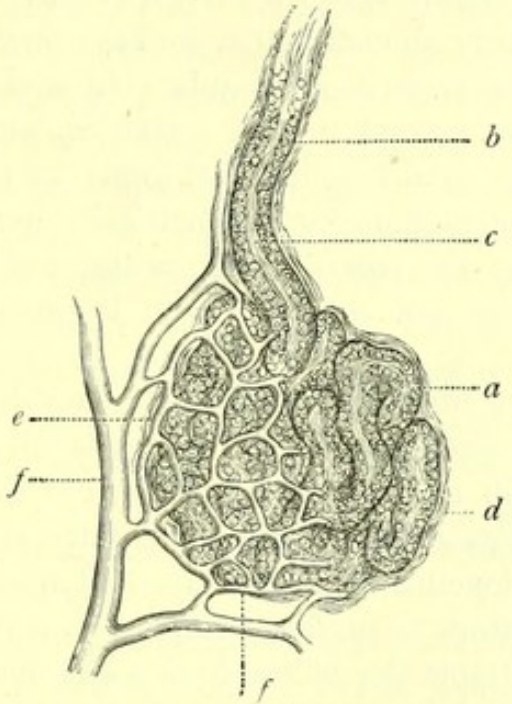


Fig. 43.—A Normal Sweat-Gland, highly magnified (Neumann).
a, sweat-coil with secreting epithelial cells; *b*, sweat-duct; *c*, lumen of duct; *d*, connective tissue capsule; *e* and *f*, arterial trunk and capillaries supplying the gland.

inflammation in or around the sweat apparatus, either primary, as in miliaria papulosa, or secondary to the obstruction, as in miliaria vesiculosa. Hydroadenitis, 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.

HYPERIDROSIS.*

Deriv.—περ, 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 localized 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 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 they disable the patient from social duties or from many occupations; and if on the feet, interfere with walking, the skin becoming sodden, corrugated, and in parts red and tender. In

* *Literature.—Des Sueurs Morbides*, by L. Bouveret (Paris: 1889).

† Myrtle of Harrowgate, 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.

regions like the genitals, in contact with adjacent surfaces, intertrigo and eczema may arise. The sweating is continuous, but aggravated when the weather is hot, or under emotion, or depression of the general health. 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 localized 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.

Pathology.—Claude Bernard's experiments showed that paralysis of the sympathetic was followed by hyperidrosis, and Brown-Séquard 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 localized 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.

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. ʒj; 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. Faradizing 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 plaister. Thin's plan is to dredge boracic 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 boracic 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 1 per cent. of quinine in alcohol, sponged on, is recommended by Fox of New York.

* 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 when 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 worst in the summer months. When at its acme, he lost appetite and spirits, had a pricking sensation, and sometimes minute red papules all over the hands. He had tried almost every variety of treatment, but, of them all, sulphur internally did him most good, keeping it under for twelve months; but latterly, even that failed.

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 boracic acid or borax locally.

BROMIDROSIS.

Deriv.—*βρώμος*, 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 smelt 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, walking then becoming 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.

* W. A. Hammond, "On Odours in Connection with the Nervous System," *New York Med. Rec.*, vol. xii., 1877, p. 460, and *Monin sur les Odours du Corps Humain* (Paris: 1885); full abstract in *Amer. Jour. of Cut. and Ven. Dis.*, July, 1885.

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. Salicylate of sodium in 5 to 10 grain doses has cured some cases. For other methods see Hyperidrosis.

CHROMIDROSIS.*

Deriv.—χρῶμα, a stain, and ἱδρώς, sweat.

Synonyms.—Stearrhœa or Seborrhœa nigricans (Wilson and Neligan); Pityriasis nigricans (Read).

Definition.—Coloured excretion of sweat or sebum.

Symptoms.—In this very rare and curious affection, two instances†

Literature.—Le Roy de Méricourt, *Memoir sur la Chromidrose* (Baillière et Fils: Paris, 1864). Wynne Foot, *Dublin Jour. of Med. Science*, Aug. 1869 and Dec. 1873, and *Irish Hosp. Gaz.*, Feb. 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

of which have come under my notice, 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, back 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 the cases I have seen, it was largely composed of fat and was flaky or granular, and much more resembled seborrhœa than sweating, and for these cases Wilson and Neligan's name, stearhœa 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 observed to be excreted under observation.

* * * * *

It would thus seem that there are two forms—the sweat and sebaceous; and probably the first are those 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.

an action, and latterly she had suffered from articular pains. The discoloration 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; but 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.

* Conrade had a case of blue perspiration of one-half of the scrotum. White of Harvard reports a doubtful case of unilateral yellow chromidrosis in a man, *Jour. of Cut. and Ven. Dis.*, vol. ii., Nov. 10th, 1884.

† *La France Médicale*, Aug. 20th, 1885.

The amount of pigmentation varies on different days, or when it forms rapidly, at different times in a 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 colouration. When checked in one place it has appeared in other parts of the skin, and in the excreta; in Teevan and Brodie's* case 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 oxidized 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 it 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.

* *Medico-Chirurgical Trans.*, 1845, vol. xxviii.

† 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.

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 of 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 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‡ they resemble not only the red bacterium prodigiosum, but colourless growths of the hair and sweat. It 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

* A number of cases are recorded by Dr. Clapton, *Med. Times and Gaz.*, vol. i., p. 658, 1868.

† Balzer and Barthélemy, *Annales de Derm. et Syph.*, June 1884.

‡ *Centralblatt für Med., Wissensch.*, 1882, p. 146.

§ McCall Anderson, *Lect. on Clin. Med.* (London: 1877).

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, 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, pus in cancer, and urine and semen, when phosphorus is being taken as a medicine, are better known.

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

* 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.

† Warlomant, "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).

like hoar frost, have been deposited on the body. This has 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 never 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 or **Rubra.** This variety has the same relation to sudamina as acne vulgaris has to comedones. Inflammation occurs in the gland as a consequence of the retention of the sweat secretion, vesicles and pustules arise in great numbers upon the trunk, especially upon the back, but they may also come upon the face and limbs; they are closely crowded, but discrete, situated upon an inflamed base, and the fluid, being inflammatory, is of alkaline reaction. The general red hue imparted to the skin has given rise to the term miliaria rubra, while miliaria alba has been applied to the vesicles when the contents, clear at first, have become opaque and yellowish white. 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 the next variety.

The "**red gum**" or **strophulus** of infants is really a sweat rash or miliaria 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 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. 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.

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 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 or closely-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 others who perspire profusely.

Anatomy.—The pathology has been sufficiently explained; the anatomy of sudamina has been investigated by Haight, and Robinson of New York. 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.

In M. vesiculosa and papulosa, slight inflammatory exudation doubtless occurs about the ducts, and in vesiculosa, the fluid is effused more freely than in papulosa.

Diagnosis.—The minute pearly vesicles of sudamina can scarcely be mistaken for anything else.

M. vesiculosa is most like *vesicular eczema*, but in the last 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 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, 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 boracic 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.

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; *Fr.*, Acné sébacée; *Ger.*, Schmeerfluss; Gneis.

Definition.—A functional disorder of the sebaceous glands, producing increase 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, but, being chiefly an increase of the natural function, it is more easy to understand than to define the line between the physiological and the pathological conditions. The secretion varies, however, not

only in quantity, but in quality. Thus, when the olein of the sebum is in excess, constituting **S. oleosa**, which varies greatly in degree, the skin feels and looks greasy and shining on the surface. Its most common position is on the face, especially the forehead and nose, the complexion is generally thick and muddy, and, owing to dust, etc., adhering so readily, the skin always looks dirty. On the

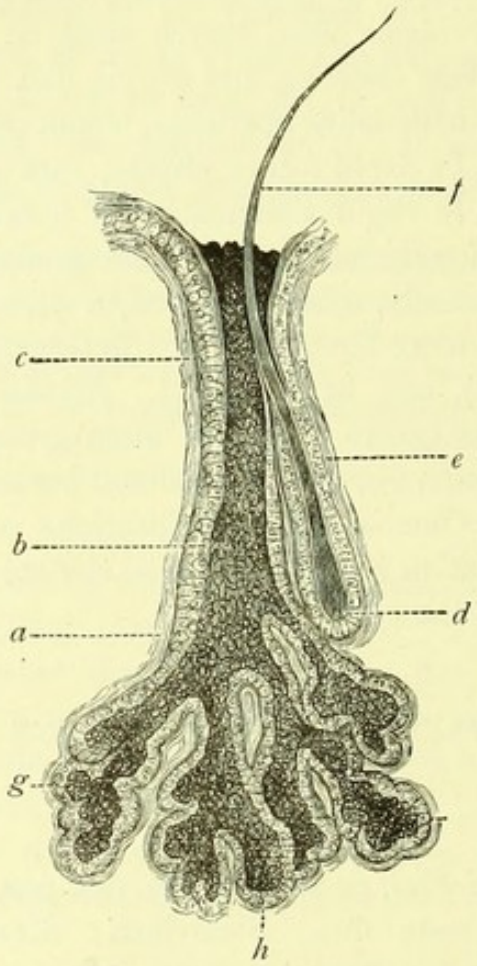


Fig. 44.—A Normal Sebaceous Gland, in connection with a lanugo hair (Neumann). *a*, connective tissue capsule; *b*, fatty secretion; *c*, *h*, fat-secreting cells; *d*, root of a lanugo hair; *e*, hair sac; *f*, hair shaft; *g*, acini of sebaceous gland. A sebaceous gland in connection with an ordinary hair may be seen at the beginning of the section on diseases of the hair.

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.

On the scalp, it does not attract much attention except in bald persons, to whose head it imparts an extra polish.

Seborrhœa Sicca differs much in degree and in appearance,

according to whether the stearin of the fat is in excess, or the fatty metamorphosis of the epidermic cells of the gland has been imperfectly effected.

In the first case, dirty-looking yellowish or greenish brown, or even black fatty plates, more or less mixed with scales, form a crust of varying thickness, entangled with the hair if on the scalp, while if it is on a non-hairy surface, such as the face or neck, the crusts are small, less obviously fatty, and often associated with hyperæmia looking like an eczema, but it is always dry; the condition may also be seen on the body or limbs, but it is not often extensive. When the secretion dries into hard plates they are often closely adherent, sending a process down into the follicles (**ichthyosis sebacea**).*

When the fatty metamorphosis is imperfect, the surface is covered with small shining scales (**pityriasis**), which on the scalp (**dandriff**) may be very abundant, and cover the clothing with powdery scales. A similar condition sometimes occurs with a considerable hyperæmia, burning, and itching. It may be acute or chronic, and when of long standing, leads also to loss of hair. Pincus, Piffard, Malassez, etc., consider this to be a special disease of parasitic origin, and figure flask-shaped spores. They call it **pityriasis simplex**, but most authorities regard it as a variety of seborrhœa. Under the term **seborrhœa corporis**, Duhring describes lichen circinatus, while **S. congestiva** was given by Hebra to what is now known to be an early stage of lupus erythematosus.

Seborrhœa is met with at all ages, and varies somewhat at different periods of life. 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 of varying 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 unfrequent event; otherwise it can scarcely be said to transgress the physiological limit.

* Bateman's Atlas, Plate XVIII., gives a good representation of it.

† Hebra regards the rare and fatal disease ichthyosis congenita of many authors as a seborrhœa. Unna thinks that the sweat coils are really fat secreting structures, and that they, and not the sebaceous glands, furnish the vernix caseosa.

In children, especially when strumous, it is pretty general on the trunk and limbs in small shining scales, and is generally present with lichen scrofulosus. At puberty and up to about thirty it is most common either as a S. oleosa or sicca, or both combined, and acne vulgaris is a common accompaniment. It is generally limited to the head and face, and may be accompanied by signs of inflammation extending on to the forehead from the scalp with well-defined border. S. sicca on the scalp interferes with the nutrition of the hair, which becomes dry, brittle, and lustreless, and falls, or is easily combed out, and this is one of the most fertile causes of premature baldness, especially of the vertex (**alopecia pityrodes**) in both sexes, and may be produced by both the dry varieties. A similar condition may affect the hairy part of the face. In women, after the climacteric period, it is also a common cause of loss of hair, and may be either simply scaly, or in fatty plates round the hair; it is generally very obstinate, and may be incurable, unless treated in the early stage. The aged may also suffer from a general dry seborrhœa, dirty-looking branny scales covering the whole body more or less; a similar condition occurs in diabetes and other chronic wasting diseases (**S. tabescentium**).

Etiology.—Excluding the infantile form, which hardly amounts to disease, it is especially 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 in 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.—Seborrhœa is primarily an exaltation of the natural function, and is therefore most conspicuous where the secretion is normally very abundant, viz., on the scaip 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 is mixed with the secretion, and is one factor in the production of the scaly form, the other being, as already mentioned, 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.

There is a growing opinion that micro-organisms play an important part as an exciting cause, but the nature of the organism remains to be discovered.

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-

* Pincus found that three-fifths of the scales, by weight, consisted of abnormally firm secretion from the sebaceous glands.

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 that disease.

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 of the hair 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; defects in health should be carefully looked for, corrected, and every effort should be made to place the patient under the best condition as to health 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: soften the fat crusts with strips of flannel dipped in olive oil and lay 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. ♏xxx, vasel. alb. ℥j 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, but sometimes ʒj to the ℥j is employed. Whatever the treatment adopted, it should be energetically and perseveringly pursued.

Under the name of **alopecia pityrodes universalis**, P. Michelson describes* a rapid and general denudation of hair occurring in debilitated states, which differs from the malignant alopecia areata universalis 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, ablution with spirituous soaps, or weak solutions of corrosive sublimate or chloral hydrate. It appears to me to correspond with seborrhœa sicca except in the rapidity and extent of the denudation of the hair. The only instance I have met with corresponding to it, in this respect, was that of a young man in whom, after an attack of erysipelas of the head, the whole scalp became scaly, and tufts of hair could be pulled out all over with very slight traction. New hair grew up rapidly; this condition may, however, have been merely the result of the desquamation which is the usual sequel of erysipelas.

* *Monatshefte f. Pract. Dermat.*, 1882, No. 4, and Ziemssen, p. 418.

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. 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.

Pathology.—They 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.

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 reform. 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.

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.—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.*** They also form tumours in con-

* 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.

nection 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.

Etiology.—They 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,* 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 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 then 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,

* I saw an instance of this in a case of Dr. Barlow's at the Great Ormond Street Children's Hospital; they formed groups on the site of bullæ on the limbs, etc. Handford also records a case.

† Robinson's *Manual of Dermatology*, p. 73.

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.

The etiology, pathology, and treatment are discussed along with acne vulgaris.

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 others, 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 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, and give the part a very dirty and sometimes black appearance, and seborrhœa is often present in 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

* 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."

† See *Lancet*, April 19th, 1884; also a letter by Julius Cæsar, on May 6th, in the same volume.

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.

They differ thus from those of adults 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. I have once seen a closely analogous condition all over the abdomen of an old man, but with more tendency to inflame. 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, is sufficient for their removal.

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.*, Finne.

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 acne cachecticorum and 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 acne 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.

Acne vulgaris is a very common disease in adolescents, though it does not form more than 4 per cent. of all forms of skin disease which come to a special department. It is of all grades of severity, from one or two small pustules at a time, up to thickly aggregated papules, pustules, and tubercles in all stages of development and retrogression. Whilst each stage of development has received a different name, acne cachecticorum 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, 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 (**acne punctata**), or if the sebum is within the gland, instead of at the orifice, there is a pustule without an obvious comedo (**acne simplex**). When the pustule with its red base enlarges to the size of a hemp seed or small pea, it is **acne 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 tubercle, which subsequently softens in the centre, but seldom ruptures spontaneously as it has no orifice, it is **acne 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.—Acne vulgaris occasionally persists after thirty, and may exist to some extent throughout life; the back and chest are then considerably involved, with large indurated tubercles, and I have seen the whole back one mass of confluent scars, pustules, and large comedones. Under adverse conditions the disease may generalize, 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 was in four days thickly covered with red papules and pustules of the usual acne type, each pierced by a hair, or with sebum at the orifices; the glands also in the axillæ and groins were enlarged.

This exceptional generalization of A. vulgaris constitutes **acne cachecticorum**, which is never limited to certain regions, occurring 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 occur 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.†

In strumous subjects, especially in those who already have general seborrhœa or lichen scrofulosorum, acne pustules appear in varying numbers; epithelial occlusion of the gland orifices is probably the proximate cause in these cases.

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

* Private Notes, 1880, p. 101.

† One of these, a well-marked case, was published by Tilbury Fox in the *Lancet* of April 5th, 1878.

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. In two cases, there was a family history of phthisis, which to some extent, perhaps, favours Fox's view, but microscopically there was fibrocellular 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.*

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 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.

* *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.

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 tubercles 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.*

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, **Acne Keratosa** would be appropriate. It is not the same as the acné sébacée cornée of French writers, 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 propor-

* The patient was shown to the Dermatological Society, and Mr. Hutchinson was the only member present who had seen a similar case, which was equally rebellious to treatment.

tion (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 is 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 an increase of connective tissue is sometimes produced after 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.

Acne rosacea occupies only the middle two-thirds of the face. Such 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 acne vulgaris is generalized, the circumstance under which this generalization 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, 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) is 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, ♏ij or ♏iij, 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 Anvers, 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,

Fig. 45.—Clover's acne presser.

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. 45). The central hole is placed over the comedo, and moderate pressure with a shaking motion expresses it. A watch-

* Piffard, apparently unaware of Clover's instrument, has described a precisely similar one, except that it is curved in the shank.

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 acne indurata, the incision* should be more free, or multiple punctures, followed by bathing with hot water to encourage bleeding, is a good plan.

Where the knife is dreaded, each tubercle should 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

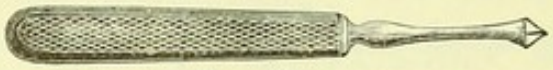


Fig. 46.—Kaposi's acne lancet.

sulphur may be scented, and applied with a powder puff three or four times 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., is good; these may be used in the day after

* A crucial incision with Kaposi's acne lancet, which has a shoulder which prevents puncturing too deep, may be made by the patient himself.

the more stimulating applications, and partially conceals the 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; Kupfrige gesicht.

Definition.—A chronic congestion of the face, leading to permanent vascular dilatation, with more or less secondary sebaceous inflammation.

Acne Rosacea is a rather common disease, though it does not form more than 2 per cent.* of all cases in hospital 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 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

* 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.

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 tubercles 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 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, tuberculated 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.

According to Hebra, the disease 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.

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 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 tubercles, 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 tubercle 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 Hebra, in hypertrophic acne, which he regards as a separate disease, found 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.

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 of the eruption, the papules and pustules following, not preceding the other symptoms, and the slow development of the disease, are its most diagnostic features, and distinguish it from *acne vulgaris*, in which there are comedones and no general redness, while the eruption is often on the trunk as well as the face.

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 raised than the hyperæmic stage of acne, more defined and raised at the edge, and lacks the tubercles 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 tubercular syphilides* are very like acne 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 tubercular 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 localization 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 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 unfrequently, 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, and 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 Vleminckx's solution, 1 part to 4 or 5 of water (Parasiticides, F. 11) applied at night, and in the day-time 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; 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; cicatrization 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).

Definition—A grouped pustular eruption, which appears chiefly on the upper part of the face or scalp, and leaves scars like those of small-pox.

The term A. varioliformé was originally given by Bazin to molluscum contagiosum, but A. 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 one of my cases it was also on the chest. 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 whitening and

looking like a small-pox scar; hence the name varioliformis. 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 inclined to agree, though it is not the one usually accepted; a history, or corroborative evidence of syphilis is forthcoming in a certain number, but I admit is not obtainable in the majority of cases. The point requires further investigation. Thus in thirteen cases—eight females and five males—there was conclusive evidence of previous syphilis in three, and two others owned to gonorrhœa.

Pathology.—No examination of the morbid tissues has ever been made, and the pathology is not known.

Diagnosis.—An eruption which leaves varioliform scars, occurs mainly on the temples and forehead, and goes back into the hairy scalp, are the features which characterize it. 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. Even if A. varioliformis is of syphilitic origin it 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. 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 of 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. Local treatment is not of much use, but ung. hyd. nitrat. dil. affords some relief.

C. DISEASES OF THE HAIR FOLLICLES.

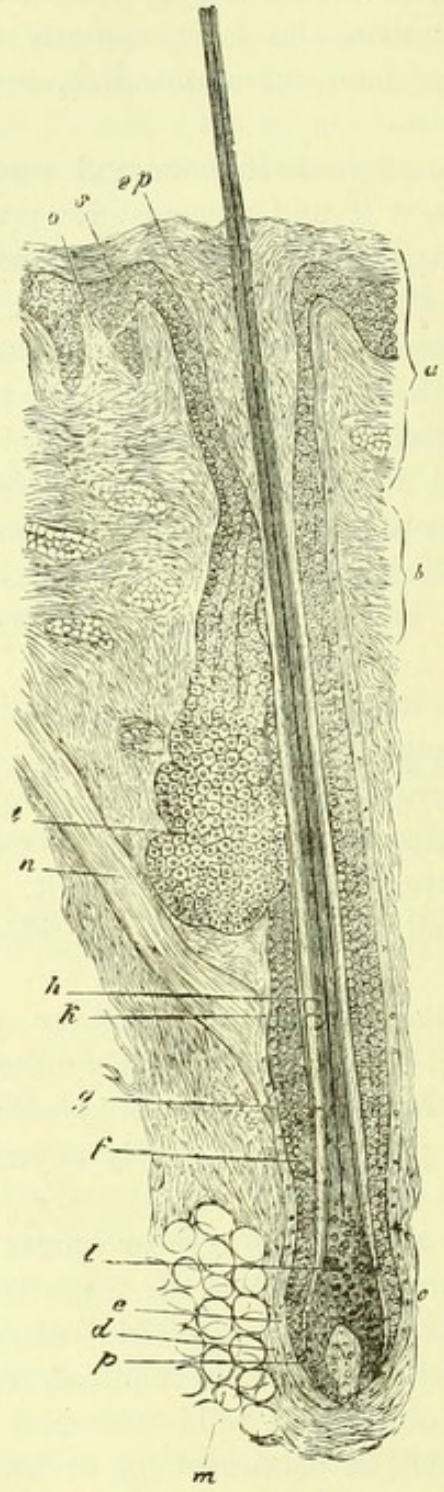


Fig. 47.—Normal Hair of the Beard (Biesiadecki).

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; *i*, sebaceous gland; *o*, papillæ of the skin; *s*, rete mucosum; *ep*, epidermis which is continued into the excretory duct of the hair follicle.

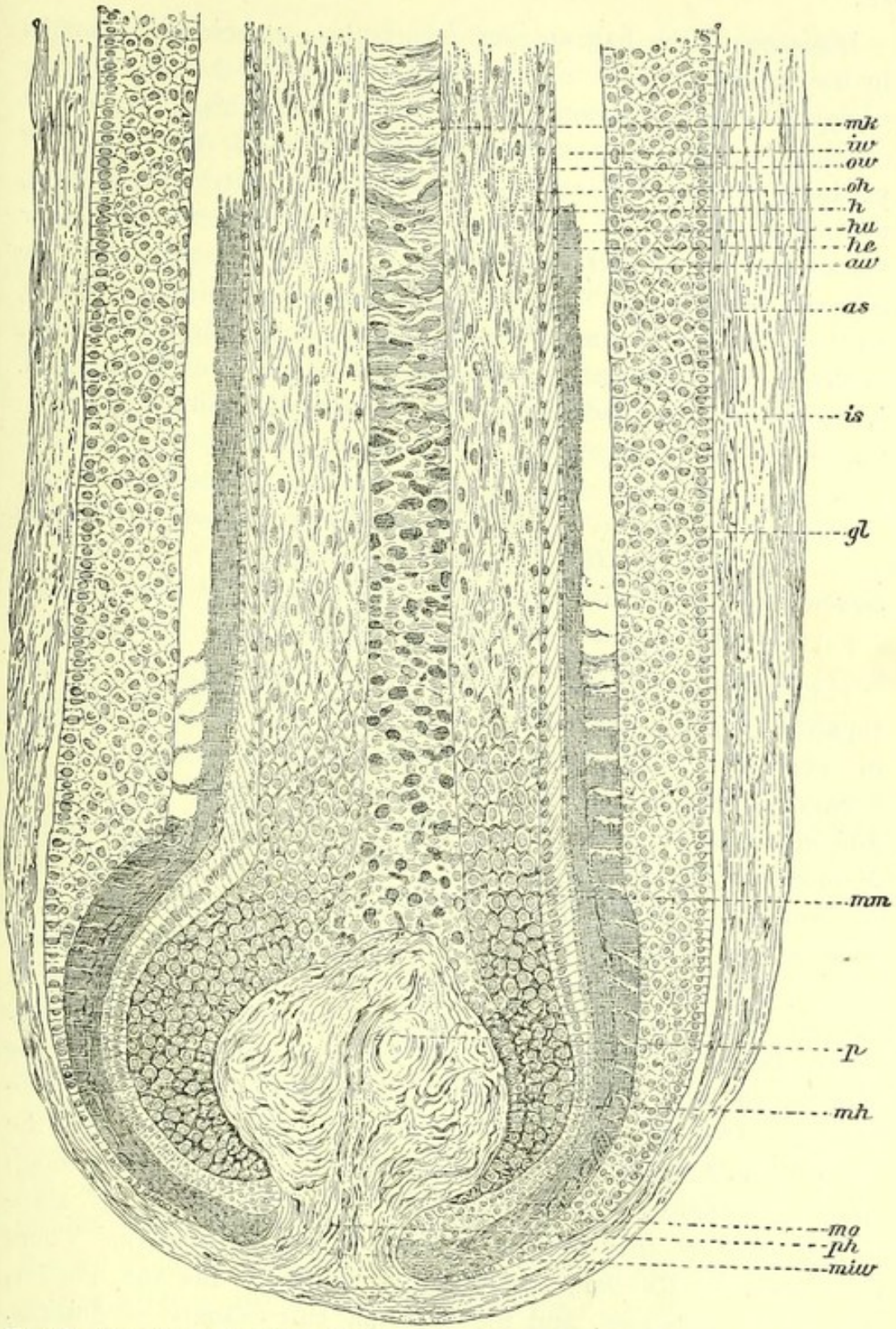


Fig. 48.—Longitudinal section of the root of a NORMAL HAIR from the beard (Unna). *as*, external root sheath of the follicle; *is*, internal sheath of the follicle; *gl*, vitreous membrane of the follicle; *aw*, external root sheath (prickle layer of the follicle); *iw*, internal root sheath; *he*, sheath 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.

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.

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 Jeftichjew and his son Feodor, figured in Ziemssen, and the Mexican hairy family of Ambras.

* *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.

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 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, either of deficiency or excess, are generally present.

Etiology.—Racial peculiarities account for a certain number of cases. Thus there are 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. 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 and 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

* Sutton on "Spina Bifida Occulta, and its Relation to Ulcus Perforans and Pes Varus," *Lancet*, July 2nd, 1887, p. 5.

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 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 of electrolysis, first used by Michell 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 two to four milliampères are sufficient. If the needle is of steel, it should be as fine as possible, mine are No. 16, but the one I generally prefer is a gold needle with iridium tip, and Hardaway recommends an irido-platinum one. These needles are supposed to feel their way, so to speak, into the

follicle, while the steel ones are so sharp and rigid as to more easily pierce and go outside it. 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. 49). 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

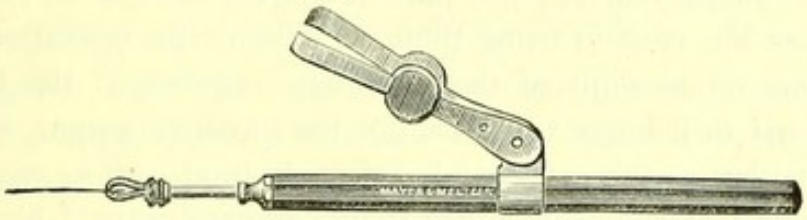


Fig. 49.—Needle holder, with forceps attached, for removing hairs by electrolysis. In use, the forceps should be turned backwards instead of forwards, as in the woodcut, otherwise the patient may get an accidental scratch with the needle.

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 cocain and lanolin, and I have also injected cocain hypodermically. 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.

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. zinc 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 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; it does 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 disorder 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. 50); the cause is unknown, beyond its being a trophic defect.

Fig. 50.—Hair of beard split down to the follicle. × 4.

In another form the cuticle only is affected, and splits away, 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); Tricoptilosis (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 brushes, stuck end to end (Fig. 51). 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.

The treatment is not very satisfactory. Shaving is recommended, and has, when long continued, sometimes been effectual;

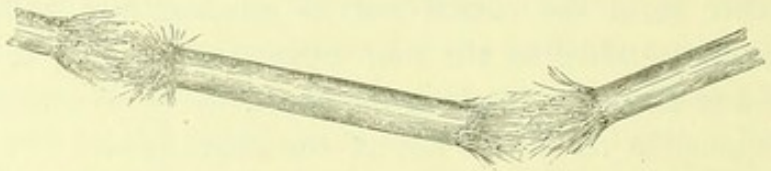


Fig. 51.—Trichorrhexis nodosa from scalp of lady æt. thirty. Obj. $\frac{4}{10}$, ocul. 2 in.

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.

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,‡ and Luce § have

* "A Rare Nodose Condition of the Hair," *Brit. Med. Jour.*, vol. ii., 1879, p. 291, and vol. i., 1880, p. 654.

† Ueber Ringelhaare, *Viert. f. Derm. u. Syph.*, vol. xii., 1885, p. 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.

published cases, and Thin's case,* shown at the Congress in 1881, presented a closely analogous if not identical condition.

In this affection there are a regular succession of fusiform nodes connected by narrow portions, giving a very distinctly beaded appearance (Fig. 52). 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. All the cases have occurred in childhood, or even in infancy, and some at least 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 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. There is nothing to be done in congenital cases,

Fig. 52.—Moniliform hair. Obj. 1 in., ocul. Zeiss 3 in.
The illustration is taken from a hair kindly given me by Dr. Walter Smith.

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 faradaic brush.

ANITIES.†

(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

* Vol. iii., p. 190, of the *Transactions*.

† *Literature.*—Wilson's *Lectures on Derm.*, 1878, p. 166, *et seq.* Landois, "Das Plötzliche Ergrauender Haupthaare," Virchow's *Archiv.*, vol. liii., 1866, p. 575, with plate, contains numerous references.

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. 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. 53). The reverse of this is seen in 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. A hair may also be white or coloured in rings or bands, 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

Fig. 53.—Hair from a case of alopecia areata during recovery, becoming gradually pigmented.

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 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. 54, *a*). The pigment was in stellate heaps round the medulla at regular intervals in some hairs, but not in all, and the free areas were much longer than the pigment areas.

* Wilson's Lect., *loc. cit.*, No. 535-6, Coll. of Surg. Museum.

† *De Capillitii Humani Coloribus quædem. Diss. inaug. Gryphiæ*, 1846. Quoted in full by Landois, *loc. cit.*, with plate and microscopic description.

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

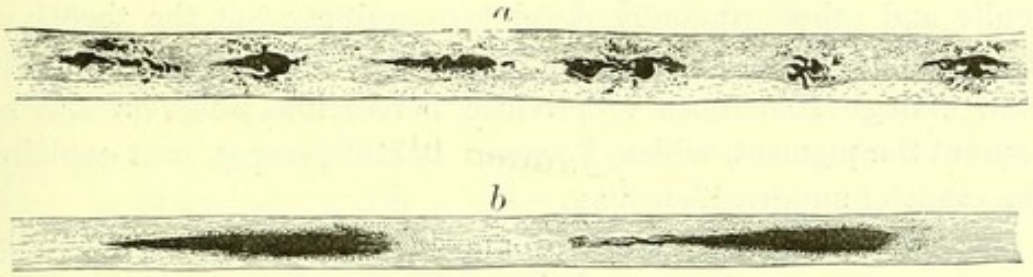


Fig. 54.—Ringed hairs. × 125.
a, from moustache; *b*, from scalp of another patient.

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 total loss of hair; only a few red, white, and black hairs remaining on the temporal and occipital regions.

Etiology.—Sex has no influence. It is uncommon before the patient has grown up, but a few cases with one or more white tufts have been congenital, and it is seen in children occasionally. 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

* *Loc. cit.*
† Quoted in *Lancet*, October 14th, 1882.

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 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.

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 exhaustive 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 ɱx 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.

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's case. The patient was suffering from pyelonephritis 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, in copper smelters; deep red-brown hair, in handlers of crude anilin;

* *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.

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 hairbulbs. 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 Med. Chir. Soc. 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, and then spreads forwards and backwards until the whole crown is

* *Archiv. für Klin. Chir.*, bd. xiv.
† *Med. Chir. Trans.*, vol. xxxi., 1848, p. 71.
‡ *Med. Chir. Trans.*, vol. lix., 1886, p. 473.

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.

There is, however, 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 scalp, which may lead to per-

manent 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 and in morphœa, and here the baldness is permanent.

4. 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.

5. 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 latter 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.

6. Local injuries—a blow producing a bruise, the sting of a bee (Wilson) ; friction—*e.g.*, from the headgear in women, or from their straining the hair in abnormal directions.

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 faradaic 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, as it is too sticky by itself; from one-half to one grain of hydrarg. perchlor., may be added with advantage. See also under 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, varying in degree, in small circular patches, large areas, or even universal denudation of hair.

The disease is a very common one in England, forming, according to McCall Anderson's statistics, and my own, nearly 2 per cent. of all cases, while Bulkley's hospital practice shows only about one-third per cent., and the statistics of the American Dermatological Society show a little over one-half per cent. At least two varieties may be clinically distinguished, the rapidly universal one and the patchy form, which may eventually become complete. The patchy form is by far the most common.

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, perhaps, the earlier patches are more often situated posteriorly, just above the line of junction of the parietal and occipital bone, and in a corresponding level at the sides. The shape 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.

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

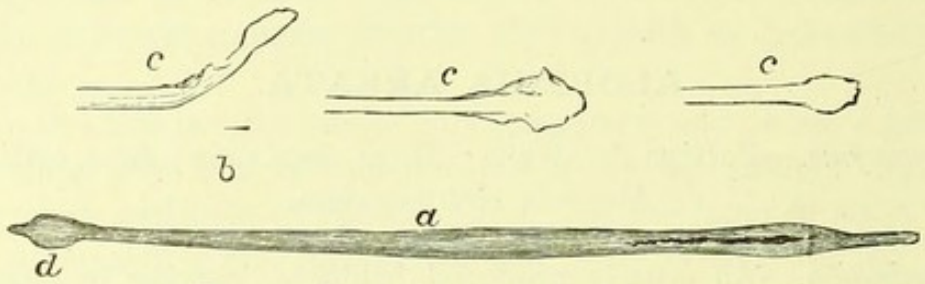


Fig. 55.—Short (!) hairs of alopecia areata.
b, natural size; *a*, the same hair × 50; *c*, *c*, *c*, atrophied roots × 50.

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 æthesiometer,* 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. 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 at 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. 55). In the early stage a few of these hairs may some-

* Neumann says it may be anæsthetic.

times 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. 53). 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 generalized ones eventually get sometimes complete, sometimes incomplete, restoration. Relapses may occur, either soon, or only after a long interval. In the unfavourable cases, the scalp becomes very smooth and shining, and the orifices of the hair follicles either become obliterated, or are marked out by sebaceous secretion.

Variations.—Instead of forming round patches, it sometimes takes a serpentine course, a band about an inch wide being formed round the back and sides of the scalp, or it may travel in a zigzag manner over any part of the head.

In the "**universal form,**" which might well be considered as a separate disease altogether, and is fortunately rare, the hair does not always come off in patches, but there may be a rapid and general falling off of all hair, and even the nails sometimes, as in the following case. A boy of eight years, whose general health, with the exception of a poor appetite, was undisturbed, suddenly, without apparent cause, began to lose his hair, and in ten days the whole of the hair all over the body was shed, together with the nails; when seen three years later there was not a vestige of hair anywhere, and the nail-bed was rough and irregular, as if the nail had been torn off, leaving, however, a little horny matter behind.

Dr. Tyson of Folkestone records three somewhat similar cases in adults æt. forty-four, twenty-one, and forty respectively, but the nails were lost only in one case, and then it was only those of the great toes and thumbs; in the first of these cases worry, in the second a sudden fright, and in the third a fall on the head, immediately preceded the loss of hair. Other cases are on record, and they are doubtless of neurotic origin, and probably of a totally different nature from the patchy cases. The prognosis is decidedly bad, recovery being exceptional. In another case of my own, a girl of two, the hair came off within a month after a fall from a window, which induced concussion of the brain. A year and a half later the hair was growing in parts, leaving bald areas like commencing alopecia areata. In another case, a boy, the whole of the hair came off soon after a fall from a tree on to his head.

Etiology.—The disease occurs in both sexes, but is said by some authors to be more common in females, but this is only true for

children in my experience, viz., as 41 is to 23. The range of age is from two to sixty, but few cases occur below five or above forty; my own extremes were three and fifty years. It is more common in the young; thirty-seven out of eighty-three were under twelve, and fifty-four under twenty. It is also seen in all stations of life, but is much more common among the poor. As has already been pointed out, the rapidly universal cases often have a history of fright, nervous shock, anxiety, or injury to the head, etc. The etiology of patchy cases is obscure. In the majority of instances, no cause can be assigned. Only in a few is there evidence of neurotic influence, such as a history of blows* or neuralgia, and in a few cases, "vitiligo" has been associated with it (McCall Anderson). 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.

The following series of my own are evidently of the same nature: Eight children in one family while at the sea-side 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

* Dr. J. Collier in *Lancet*, June 11th, 1881, relates some interesting instances of single patches of alopecia areata from blows on the head.

† Hillier's *Handbook of Skin Diseases*, p. 286.

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.

Gilbert, Gillet, Hardy, and Hutchinson * also cite cases in support of its possible communicability, and other instances are on record. Nevertheless it is very exceptional to find the slightest ground for the suspicion of contagion, and the question arises whether they are not really instances of *bald tinea tonsurans*, to which the reader is referred for further information. In the great majority of instances, there is no assignable cause either in the health, history, or surroundings of the patients. Jamieson said it occurred exclusively in his experience in dark-complexioned people, but I have repeatedly seen it in fair ones.

Pathology.—It is essential to a clear understanding of the pathology of this affection that it should be recognized that there are distinct types of the disease. The rapidly universal cases, often including the nails, after nervous shocks, both mental or physical, form a class by themselves, and every one will acknowledge they are of tropho-neurotic origin.

Another class is that in which a single, or at most two or three patches, follow a severe neuralgia, a blow on the head, or other injury. These also are clearly neuroses. Both of these sets of cases are comparatively rare.

The third class makes up the bulk of cases, and consists of serpentine bands or multiple patches, and it is to these that the discussion of the parasitic *v.* the tropho-neurotic theory should be confined. Most of the dermatologists of the present day consider this form also to be a tropho-neurosis; but from the time of Gruby, who described a fungus which he called tinea Audouini (hence the name tinea decalvans) onwards to Thin, Von Sehlen, and Robinson, who ascribe the disease to a micrococcus, there have never been wanting supporters of the parasitic theory, which has certainly not a few clinical facts to recommend it. The difficulty in the way of this theory is, that the organisms escape the observation of all but a favoured few, and scarcely any two observers are agreed as to its nature and morphology.

Until therefore an organism of uniform characters can be

* *Path. Soc. Trans.*, vol. xiii., p. 266.

demonstrated in all recent cases* in the same way that the fungus of tinea tonsurans can be, the parasitic origin of alopecia areata will, to say the least of it, remain unproven. That there is 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, and sometimes even to touch, and the deficiency in pigment.

Anatomy.—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

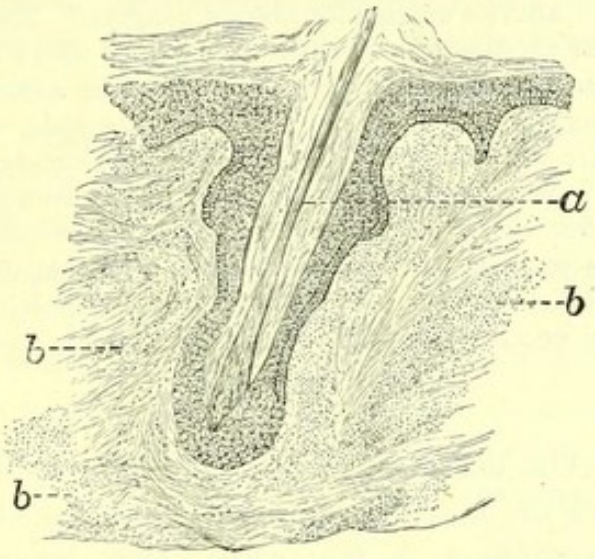


Fig. 56.—Section of scalp in alopecia areata. Obj. $\frac{4}{10}$, ocul. 2 in.
a, lanugo hair in dilated follicle; *b*, *b*, *b*, masses of round cells.

the presence of 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 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;

* Von Sehlen claims to have done this, and to have reproduced the disease in guinea-pigs, but Bender, Bordoni-Uffreduzzi, and Michelson found Von Sehlen's cocci not only in alopecia areata, but in normal scalps, and could not reproduce alopecia areata in guinea-pigs.

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. 56). 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 consisted of diplococci and cocci in masses, colonies, and lines, and in rows in the lymph spaces.

Diagnosis.—The diagnosis 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 *ordinary ringworm*, 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 breaking off at the attempt. Moreover, in these stumps, fungous elements are always easily demonstrable, while in those of alopecia areata they are never to be found in the short hairs. In exceptional cases—perhaps one or two per cent.—of tinea tonsurans, the hair comes out in the patch, and leaves it quite smooth. Patches exactly like alopecia areata are formed, but such cases generally begin like ordinary tinea tonsurans, with the scaliness of skin and characteristic stumps,

* *New York Med. Record*, September 17th, 1887, p. 402.

and then all the hair comes out; but in the bald patches thus left, there are usually none of the club-shaped hairs of alopecia areata, and probably some fungus-bearing hairs would be found just beyond the patch. The history will also help. Possibly also there will be other members of the family with the tinea in the ordinary form, with scaly patches and bent and broken hairs. No other affection besides this can possibly be mistaken for alopecia areata. I have, however, seen bald patches supervene in the course of ordinary ringworm, in which there were the typical hairs of alopecia areata at the border of the patches. Eventually all the tinea tonsurans patches became completely bald.

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.

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.

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. 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 many use it at the beginning also. It should be repeated from time to time as the patient can bear it. Faradising the scalp is also useful at the same stage as blistering, a double 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,

* I have had a cheap form of brush made for me by Thistleton.

chloroform, and aconite. The shampooing necessary to rub in these liniments has its use. Carbolic acid, tannin, nux vomica tincture, pepper, various mercurial preparations, veratria, etc., have their respective champions. When there are only patches, repeated shaving round them is advantageous. In all cases, the patient should be enjoined to persevere diligently, however disheartening the slow progress may be.

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

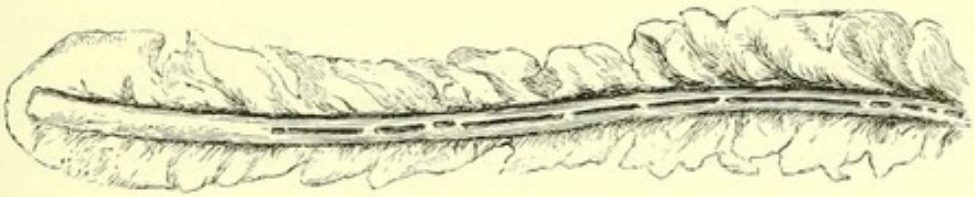


Fig. 57.—Hair of scrotum affected with lepothrix for nearly its whole length. × 100.

red sweat. As so little is known about it, I give a somewhat longer account than its importance would otherwise warrant.

The condition is probably not uncommon; 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 characterized by warmth and moisture, these conditions are probably essential to 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 a 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. 57). 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. 58). 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 seemed to consist of minute round masses; and probably, with our present knowledge of bacteriological methods, a micrococcus origin might be demonstrated. Indeed, this has been done in relation to the red

Fig. 58.—Hair of axilla affected with lepothrix in nodules. × 100.

sweat of the axilla so often associated with this condition of hair by Babes, Pick, Balzer, and Barthélémy, 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.

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 one in a thousand bichloride of mercury solution, with a view of preventing the development of organisms in the sweat.

Piedra * (Spanish for a stone). This disease is confined to the hair of the head of native women who live in the valleys of Cauca, in Columbia. 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

* Malcolm Morris, *Path. Trans.*, vol. xxx., 1879, p. 441, with plate.

beginning about half an inch from the root, either on one side or surrounding it.

The nodules are black, intensely hard, and rattle when the hair is combed; and, according to both Desenne* and Malcolm Morris, consist of closely aggregated spore-like bodies due to fungous growths. The microscopical structure appears to me to closely resemble that of lepothrix nodules, and would, therefore, suggest micrococci rather than fungi. It is not, however, intended to imply that the affections are in any way related.

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.

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. It was ascribed to a fungus, which was, however, limited to the surface of the hair.

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 Beigelianum. 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.

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.

Sycosis is not a common disease, one in three hundred being the proportion according to Hebra, but in my experience one in

* *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.

† *Lancet*, vol. i., 1879, p. 190, with woodcut.

‡ Beigel, *Diseases of the Hair*, p. 111.

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, tubercles, 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 tubercles, 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 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 cicatrization 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

* It is this condition that first earned for it the name of sycosis, from its resemblance to the inside of a fig.

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.

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 certainly more frequent in those who allow the beard to grow than in those who shave; beyond this, its causation is unknown.

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 it has never been demonstrated, the so-called parasitic sycosis, in which fungous spores have been found, being almost certainly a ringworm of the beard. 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

* *New York Med. Jour.*, August and September, 1877.

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 swollen to the end. The inflammation also never 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 tubercles 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, except in old cases of sycosis. Such conditions should lead to microscopic examination, when the fungus is readily discovered. It is 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.

Prognosis.—Sycosis is never dangerous, but often very obstinate and liable to recur. A guarded opinion as to *bonâ fide* cure 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 and removed, 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 removed; 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. 3 to ℥j. 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.

DERMATITIS PAPILLARIS CAPILLITII.

Synonym.—Acne keloid (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 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**).

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

* Kaposi, 2nd ed., p. 485, and his *Atlas of Skin Syphilis*, part iii., plate lxvi. Only one case, unless that of R. Williams is another, has, I believe, been recorded in this country, viz., one in the final stage of keloidal hypertrophy, with tufts of hair springing up here and there over the otherwise smooth surface, shown by Morrant Baker to the Pathological Society under the name of acne keloid (*Path. Trans.*, vol. xxxiii., p. 367, with coloured plate).

† Hebra's *Atlas*, heft x., tafel 3, fig. 1.

‡ *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."

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 with 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 dangerous to life. An interesting case of this class is one reported* by Hervouet of Nantes.

D. DISEASES OF THE NAILS.

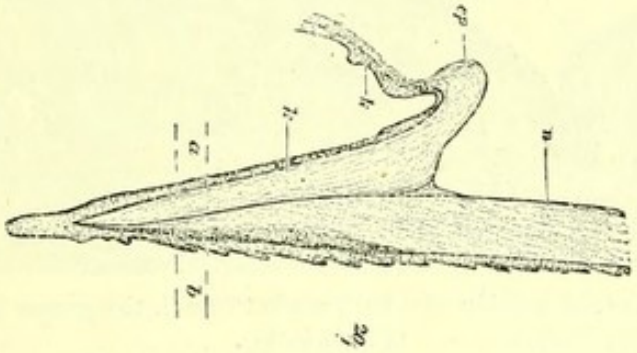


Fig. 59.—Longitudinal section through the nail, and nail fold of a child of three years old (Unna). × 20.

n, nail plate; *k*, *k*, granular layer of roof of nail fold; *ep*, eponychium.

The morbid changes observed in the nail substance are, except in the case of parasitic invasion, when the matrix is only secondarily 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.

* *Ann. de Derm. et de Syph.*, vol. iv., 1883, p. 421.

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. 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 dis-

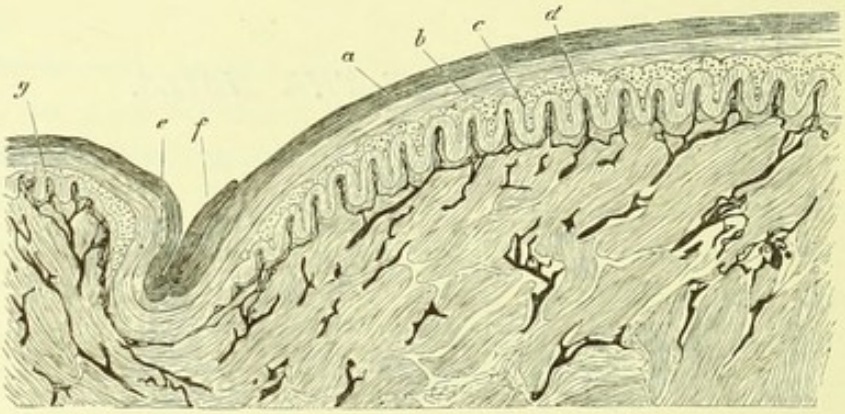


Fig. 60.—Transverse section of a nail, made through the proper bed of the nail (Biesiadecki).

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.

coloured, 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 the lymphatics, and the condition known as **paronychia**, or whitlow, in its worst form be produced. 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 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 *αὐξώ*, 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 *γρῡπός*, 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 trycophytina. 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 tricophyton 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 splitting, 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 chronic inflammations are generally the result of eczema, psoriasis, pityriasis rubra, lichen ruber, and in all these there is more or less 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. 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. Shedding of the nails also occurs in the fulminating form of alopecia areata, in syphilis, 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 toe-nail occurs sometimes in the course of locomotor ataxy, in some cases preceded by subungual ecchymosis.

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.

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 finger end. Treatment was of small avail, but the condition underwent spontaneous improvement and healing. He recognized three stages—first, great longitudinal ridges with decreased cohesion of the nail cells; secondly, reddish, longitudinal swellings; and third, 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.

* *Deutsch. Med. Woch.*, October 14th, 1886, quoted in *Lancet*, October 30th, 1886.

† *Viertelj. für Derm. u. Syph.*, vol. ix., 1882, p. 3, with woodcut

In some wasting diseases, they may be hollowed, and the edges everted; in gouty constitutions, besides chronic inflammatory affections of the matrix, hardness, and brittleness, the natural striæ may become very marked, according to Milner Fothergill,* and the nail "reedy-looking," but this requires confirmation. I have certainly seen such nails in persons who showed no other sign of gout, especially in old men, and am inclined to regard it, in these cases, as a senile change.

The nails also take their share in severe illness—*e.g.*, fevers, pneumonia, etc.—with deficient growth, and after recovery a furrow remains as a record until it has grown to the end of the finger.

White spots are common on the nails, especially in young people; their mechanical cause is the presence of air between the lamellæ of the affected part, but their origin is unknown. A curious case is recorded by Morison† of Baltimore, in which transverse bars of white, alternating with the normal colour, appeared without ascertainable cause on the finger-nails of a young lady, and remained unchanged for months.

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 boracic lint under oiled silk. Internally, the treatment

* *Med. Soc. Trans.*, vol. ix., 1886, p. 25.

† *Viertelj. für Derm. u. Syph.*, vol. xv., 1888, p. 3, with plate.

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.

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 or ʒj to ℥j of lanolin c 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.

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 (?)

V. Tinea versicolor : due to microsporon furfur.

VI. Erythrasma : due to microsporon minutissimum. Some think this is a micrococcus, and that it belongs therefore to the schizomycetes.

VII. Pinta : disease of Mexico ; fungus unnamed.

Only the first two diseases affect the hair follicles as well as the rest of the skin.

Mycetoma is not limited to the skin, but affects all the tissues of the foot.

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 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 Bizozzero'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 glass 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 anilin 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 to three 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.

FAVUS.

(Lat. for a honeycomb.)

Synonyms.—Honeycomb ringworm; Tinea favosa; Tinea vera; Tinea lupinosa; Porrigo lupinosa; Porrigo favosa; *Fr.*, Teigne faveuse; *Ger.*, Erbgrind.

Definition.—A vegetable parasitic and contagious affection of the scalp and general body surface, characterized 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, but is common in Scotland, and still more so in Poland and France,* 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

* M. Feulard states that in France about three hundred conscripts are annually rejected on account of favus.

membranes, such as the glans penis, and in one instance it affected the mucous membrane of the stomach. It differs in aspect somewhat according to whether it attacks hairy or non-hairy parts or the nails.

Symptoms.—It appears first on the scalp as a very small, sulphur-yellow disc, 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 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 scutellum (**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.

When favus occurs on the non-hairy parts, while the scutella 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.

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 scutellum 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 favourable 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 the achorion Schönleinii. 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

* 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).

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 removal of the

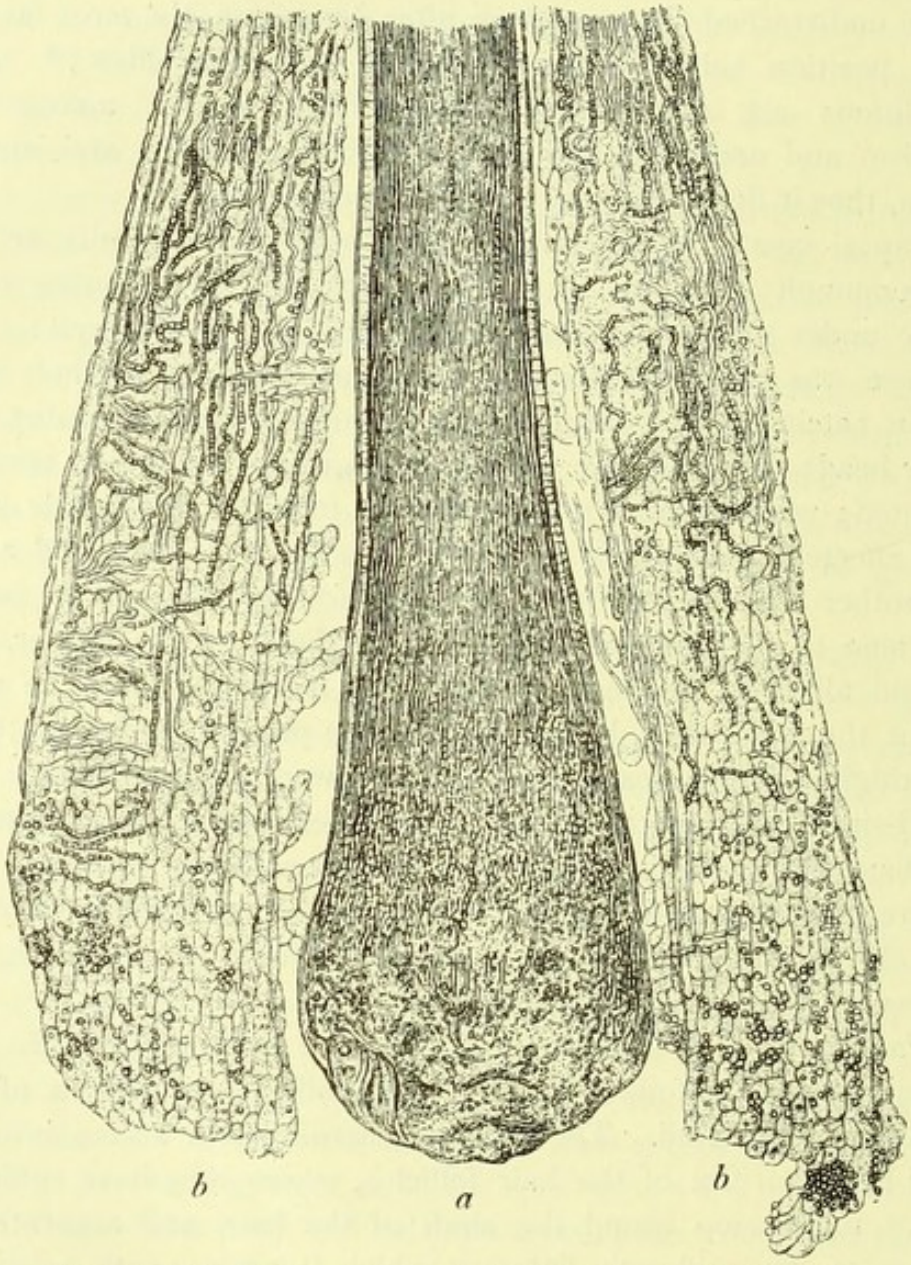


Fig. 61.—Hair shaft and hair bulb from favus. × 700 (Kaposi).
a, hair bulb; *b*, *b*, root-sheath, both being abundantly infiltrated with fungus.

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 cicatrization to this cause;

he also describes cystic degeneration of the sebaceous and sweat glands, and consequent retention of secretion.

Anatomy.—When a section is made through a scutellum, 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, 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

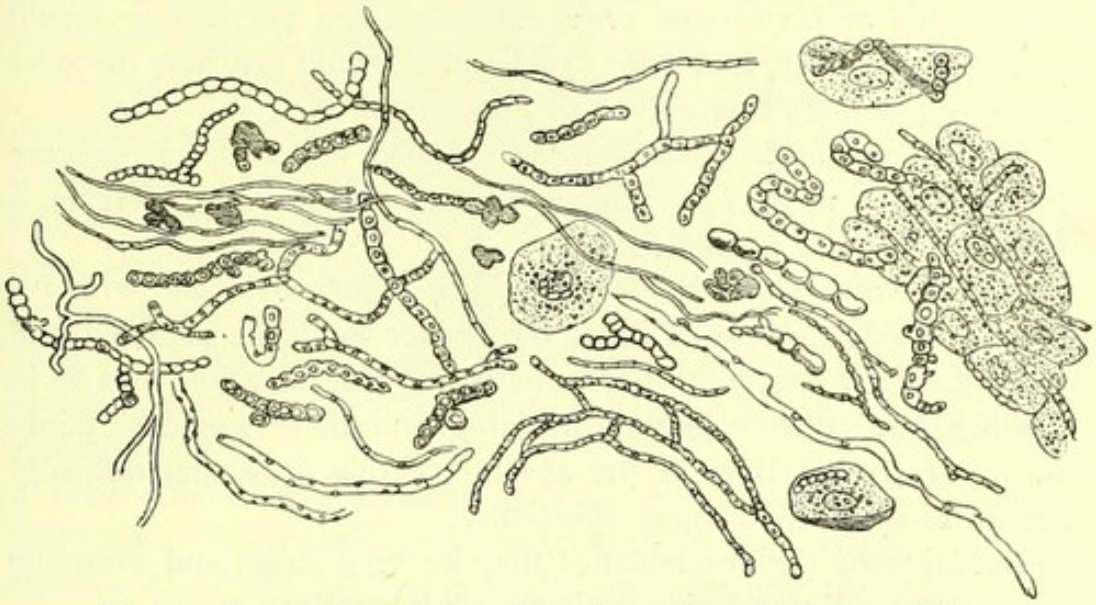


Fig. 62.—Fungus elements from the under surface of a favus scutellum. × 700 (Kaposi).

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.

Diagnosis.—Favus is one of the most distinctive of skin diseases. The sulphur-yellow, cup-shaped scutella, with a central hair, if situated on the scalp, are quite unmistakable.

In the later stage, when isolated scutella 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 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 so 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 scutella have been rubbed off or fallen 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 fungus 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, 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 plaister treatment, in which the plaister 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.

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 scutellum, 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; 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 tonsurans, or ringworm of the head, tinea circinata, or ringworm of the body, 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 varieties. 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

* 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.

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 out-stepping 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 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 still rarer 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 seen two on the scalp.

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 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 T. circinata, with thick scales or

* *Viertelj. für Derm. u. Syph.*, vol. vii.

† *Ibid.*, vol. x., p. 98, with photograph.

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 can be 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.

Tinea tonsurans maculosa et squamosa of Hebra and Kaposi is the disease described in this work as pityriasis rosea, 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.*, Scherende flechte.

Tinea tonsurans is one of the most common skin diseases in this country. In my clinique it forms 8 per cent. of all cases, or taking all varieties of it together 10 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. 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 origin of the disease, though careful microscopical examination of some of the hairs immediately round the patch will generally detect the fungus elements. See also under alopecia areata, in which instances of epidemics of supposed alopecia areata are related.

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 the hair looks lustreless, and breaks easily, and close inspection alone, reveals here and there, a solitary 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 fungus 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.

Mr. 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. No light can be thrown on the question why some patches become perfectly smooth, like alopecia areata, nor indeed for ringworm generally, is there any known constitutional or other condition of the patient to be made out that predisposes to the disease, though there is no doubt that some people are more susceptible than others, *i.e.*, that their skin or hair follicles offer some special advantage 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 view that children with ringworm dislike fat, and similar statements, are, I believe, fallacious.

*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.

Fig. 63.—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 exact botanical position of the fungus is much disputed. Thus many have thought from experiment that the ringworm fungus is identical with one of the common hyphomycetes, such as

* An abundantly illustrated paper by Thin in the *Practitioner* for 1887 gives a good *résumé* of the pathology of ringworm.

penicillium glaucum. Others have thought that it was the mucor mucedo, the aspergillus glaucus, the oïdium lactis or torula, or even that the favus and tinea versicolor fungus are identical with that of tinea tonsurans.

As, however, most of the advocates of these theories experimented before Koch's methods were known, they need not be further considered, and only the investigations of Morris, Henderson, and Thin remain for consideration. Morris and Henderson made experiments in gelatin, and came to the conclusion that Neumann's theory, that the fungus was penicillium glaucum, was correct. Thin, on the other hand, holds that it is a fungus *sui generis*, and that on sowing trichophyton and penicillium spores side by side on a gelatin plate the penicillium grew more rapidly, and was evidently distinct. Knowing how difficult it is to exclude penicillium from cultivations, I cannot but think that Morris and Henderson have not been successful in keeping their cultivations quite pure, the more so, that the very ubiquity of penicillium is against such a view, as ringworm would be well nigh universal if due to so common a fungus. I am inclined therefore to believe, 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. 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 detour." The other, or direct, theory is supported by Unna, who says, that a short distance down the follicle, the conidia pass through 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

* Since this was written, I have grown the fungus myself in gelatin peptone, and can confirm the accuracy of Thin's observations.

vol. i. of *St. Thomas's Reports*, Bristowe also, in a case of tinea barbæ, figures the fungus 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 fungus elements has been 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 fungus 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 recognize, 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

* *Med. Chir. Trans.*, vol. 1878, Thin.
† *Ibid.*, 1879, Taylor.
‡ *New York Med. Jour.*, March, 1880.

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 inspection with a lens in such a case will almost invariably detect the

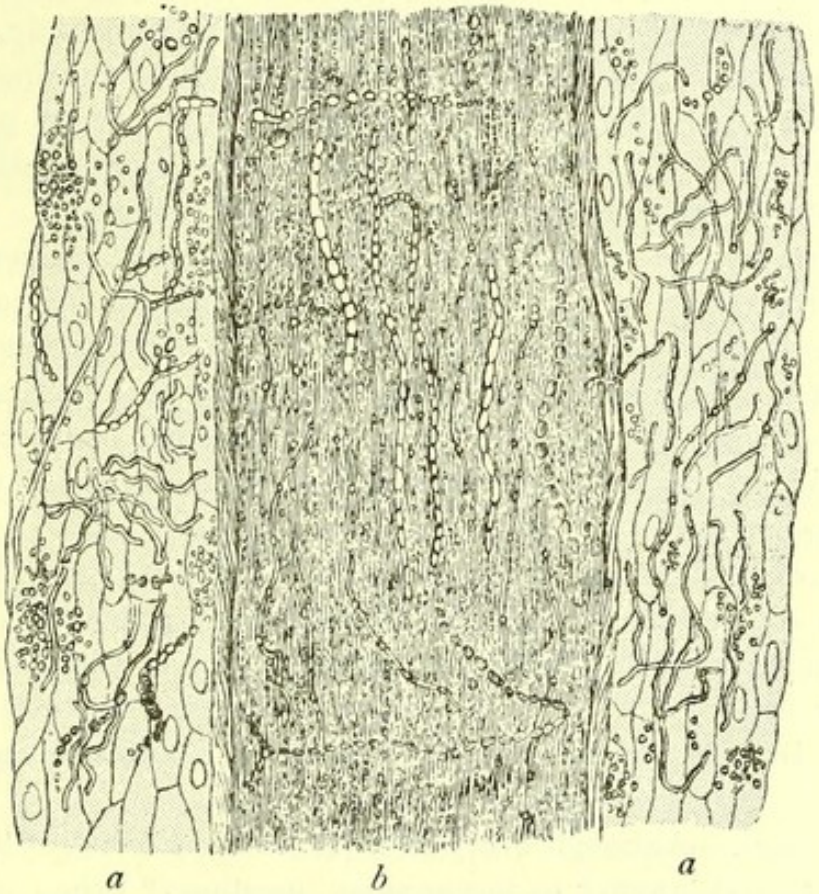


Fig. 64.—Hair and hair root-sheath from tinea tonsurans of the scalp. × 700 (Kaposi).

a, *a*, the root-sheath; *b*, the shaft of the hair. Both are copiously infiltrated with mycelium, polymorphous conidia, and chains of conidia.

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 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 practically is 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 in 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 recognized 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 hyposulphite 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, acid carbolic ♏xx, lanolin ʒvj, oil olivæ ʒij; cupri. oleatis ʒss, lanolin c̄ oleo ℥j; hyd. ox. flav. ʒj, lanolin 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 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.

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 and 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 large numbers are removed; the process is painful, and this plan is only suitable for a small number of cases therefore. 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 or almond oil. 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, benzole, 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, and 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 c. oleo one ounce, or ung. hyd. oxid. flav. B. P.; 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 appli-

cations should not be used to strumous children, nor to 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 applications, which should never be used without preliminary 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 chemical 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 complete 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 endeavoured to produce an artificial seborrhœa sicca, as the result of which the diseased hairs drop out, by using the following formula:—Boracic 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, 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 alopecia in the diseased areas has been produced, 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. Ten years ago I tried chrysarobin and benzole 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 parasiticide, 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 20-60 grs. 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. The di-iodo-salicylic acid promises well, but I have not used it sufficiently to speak positively of its merits. A formula strongly recommended by Alder Smith is acid carbolici pur. (Calvert's No. 2), ung. hyd. nitrat., ung. sulphur., partes equales; mix the carbolic acid first with the sulphur ointment, and then rub in the citrine ointment, but without using any heat. It makes a yellowish brown ointment, which is liable to turn the scalp a blackish brown colour, especially if not carefully made. I have had very good results with it, but it is difficult to examine the hair while it is being used, and once, when rubbed in over too large an area, there was carbolic acid absorption. It is advisable to begin with a weaker ointment than the above; a ʒj of each of the active ingredients in the ℥j is strong enough for a young child, and the proportion can be increased according to the effect. Lanolin would be an improvement on lard, but greater precautions against absorption would be required. Hebra is a strong advocate for green soap, from which our soft soap differs but little. I have used soft soap as a vehicle for many parasiticides, such as thymol and carbolic acid. The result was beneficial for the early part of the treatment, as it cleared away the surface epithelium and all but the deepest part of the disease. It does not, however, penetrate

deep enough for a complete cure, and the skin is desiccated too much, unless a little boracic acid ointment is rubbed in afterwards.

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 cases of limited area, and for the isolated and small groups of diseased hairs in disseminated ringworm; indeed, for the last form it is often the only resort left, and will cure the most obstinate cases. It 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. In disseminated ringworm, 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. 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, boracic 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 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 boracic 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, a 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 ; but 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.

Onycho-mycosis. 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 ʒss, pot. iodid. ʒss ; No. 2 solution consists of hyd. perchlor. gr. 4, spir. vini rect., aq. dest. āā ʒss. 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.

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 fungus 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 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.

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.

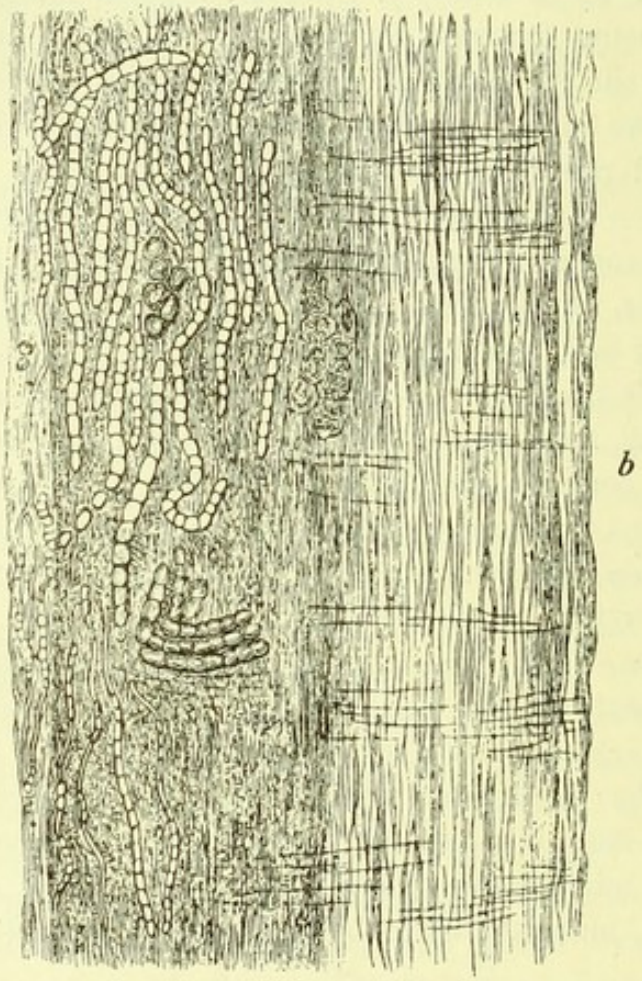


Fig. 65.—A hair from the beard in a case of tinea a . × 700 (Kaposi).
a, the portion infiltrated with fungus ; *b*, the part free from fungus.

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 unrecognized, 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 afterward. I do not agree with Jamieson that the acuteness of the inflammation is a contraindication 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 c̄ 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 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.

TINEA IMBRICATA.*

Synonyms.—Tokelau or Bowditch Island ringworm (lafa Tokelau); Gune; Cascadöe; Herpes desquamans.

Definition.—A tropical, vegetable, parasitic, contagious disease, characterized by the formation of patches of concentric scaly rings.

* *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*, 1879, vol. ii., p. 342. McCall Anderson, *Ed. Med. Jour.* for Sept., 1880, with plates.

This disease was first described in 1844 by Fox of America, under the name of "gune" (native word for skin), and subsequently by Turner, Königer for Samoa, Manson for the Malaccas, Macgregor for Fiji, and Corré for Nossi-Bé. 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. von 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 almost 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 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." "In comparatively recent patches," Turner says, "the appearance 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

* Virchow's *Archiv.*, 1878, Bd. 72, p. 413.

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 about half an inch a week.

The only symptom attending the eruption is the intense itching, and where the scales have come off, stains in rings, or sinuous lines of a livid colour are left, 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, Meedervoort 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 fungus elements are confined to the epidermic layers; and according to McCall Anderson, 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 Sigfried, 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.—This should 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

* *Literature.*—Vandyke Carter, *On Mycetoma, or "Fungus Foot of India"* (Churchill : London, 1874), with many coloured plates. Tilbury Fox, third edition, 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.

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 tubercle, 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 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 unfrequently, the disease is said to date from an abrasion or other slight injury, but equally often the origin is quite obscure.

Pathology.—The pathology is not yet clear. Vandyke Carter found a fungus in the black cases, which has been named after him, chionoyphe Carteri, and he considered that all forms were due to this fungus, which penetrated the skin from without, either through a sweat-duct or an abrasion. Lewis, Cunningham, Tilbury Fox, and others have failed to find any fungus in the pale form, and since the anatomy shows that the two varieties are really only one disease, the inference is, that the fungus, admittedly

* Kemper, *Amer. Pract.*, September 1886, quoted by Duhring, p. 490.

present in the black form, is an accidental concomitant, and not the cause of the disease, whose origin thus remains obscure. At the same time, it must be admitted that there is an analogy of this affection with actinomycosis, in which suppurations, attended with discharge of yellow bodies chiefly composed of the ray fungus, are the characteristic feature.

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 communicate 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.

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.

TINEA VERSICOLOR.

Synonyms.—Pityriasis versicolor; Chloasma (old name); Mycosis microsporina; *Ger.*, Kleien flechte.

Definition.—A vegetable parasitic disease, which is characterized 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.; in my own clinique, it is only a little over a half 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 extensive 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 scattered freely over the body, or more frequently 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; and 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.

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 fre-

* *Amer. Jour. Cut. and Ven. Dis.*, vol. iii., 1885, p. 73.

quently 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 Sydney 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 tuberculous. These experiments require confirmation before they can be accepted as correct.

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 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. 66).

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.

* Abst. of their paper in *Lancet*, May 8th, 1887, "Pityriasis and Phthisis."

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 *lichen circinatus*, *pityriasis rosea*, and *erythrasma*. The differences from the last are given under that disease.

Lichen circinatus does not travel beyond the trunk, has a red, papular margin, and is more often in separate small patches than T. versicolor. The microscope would always be decisive in a case of doubt.

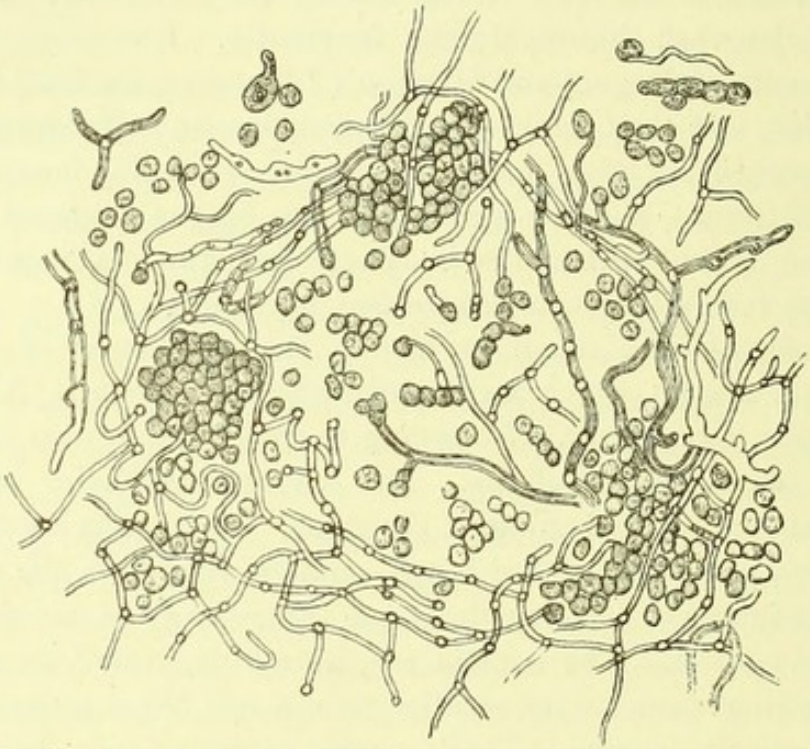


Fig. 66.—Fungus elements of microsporon furfur. × 700 (Kaposi).

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 re-appearance, and attacks the smallest recurrence immediately. Frequent disappointment 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, Dubreich, Riehl, Weye, 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.

* *Literature.*—Burchardt, *Uber eine bei Chloasma vorkommende Pilz formm. Med. Zeitung*, 1859, p. 141. Bärensprung, *Ann. de Charité Krankn.*, 1862, bd. x. Balzer, *Ann. de Derm. et 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. Diseases*, vol. ii., 1883, p. 84, with woodcuts. Payne, *Path. Trans.*, vol. xxxvii., 1886, p. 516.

Symptoms.—It occurs almost exclusively in the folds of the axillæ, inguinal and genito-crural regions, cleft of 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, 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, one of the latest investigators, 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 power of five or six hundred diameters is required to see the organism well.

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 inflam-

mation 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; Tinna (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, but possibly some 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, and 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.

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 super-

* *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.

ficial; 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 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.—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 than among the whites, though all are liable to it under circumstances favourable for its development. A tropical climate is evidently one essential factor. Inflammatory conditions, such as eczema, favour the development of the disease, though it does sometimes commence in sound skin.

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 fungus elements consist of roundish and oval spores about eight μ in diameter, and tapering branched mycelial threads, to which the conidia are attached.

Diagnosis.—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 PARASITIC DISEASES.

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 in 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 or corporis, clothes or body 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 cadanaria.

To these may be added Lucil. hominivorax in America; Stomoxys calcitrans; Glossina morsitans, known in Central Africa as tse-tse, etc.

Œstridæ: Hypoderma (vers macacaque 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.*, Kratze.

Definition.—A contagious disease due to an animal parasite, characterized 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 11 per cent. in hospitals and 3 per cent. in private practice.

In Scotland it is still more common. McCall Anderson met

ith it in one-fourth of his hospital cases, and in 4·4 per cent. n private practice. On the other hand, it is comparatively rare in ne United States, less than 1 per cent. according to the Dermato-gical Association statistics; but in New York, Bulkley met with in 2 per cent. in hospitals and only 2½ per thousand in private ractice. On the Continent it is very common.

Symptoms and *Pathology.*—The clinical picture of scabies is made p of two elements: the burrows, or cuniculi, and the attendant in-ammation excited directly by the acarus scabiei; and indirectly, he lesions produced by scratching, and the modifying influences of ressure, friction, etc. The result is a great multiformity of lesions, hich, combined with their distribution, is in itself suggestive of he nature of the disease, and enables a practised eye to detect a ell-marked case at a glance.

In order to understand the process, it must be premised that the nale wanders free on the surface or is entangled beneath the crusts, nd, with the exception of impregnation, takes no part in the pro-luction of the disease, the female alone being responsible for all the ymptomatic eruption. When placed on the skin, she burrows into t with her head, the bristles on her hind legs tilting her up, so that he head is inclined to the skin and penetrates below the surface, t is said within half an hour. Then the impregnated female lays n egg, tunnels further, laying one or two eggs almost every day, mounting to about fifty altogether, soon after which she dies, living ltogether about two months. The ova take from five to fourteen ays to hatch out, but the way the new-born acarus reaches the urface is not certain, the most probable being that, the burrow being blique, and the oldest end being nearest the surface, in the natural ourse of exfoliation of old epidermis, the most mature ovum reaches he surface first; thus the young acarus gains its freedom and is eady to commence a new life cycle.

The female selects generally the thinnest part of the skin, such as he web between the fingers and other parts of the hand, the flexures f the wrist, axillæ, fork, and penis, and other parts of the genitals, ut in long-standing cases among the unwashed, no part is exempt xcept the head and face, which are never attacked in this country, xcept in infants in arms. The marks of scratching are, however, uch more general, and exist in all readily accessible parts. In en, the pruritic eruption is mainly on the anterior surface, from he 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, in which the disease has been allowed to grow unchecked, and in people among whom washing is indulged in with the utmost caution, the lesions 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.

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), consequent on 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.

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-sixtieth to one-eightieth of an inch long (·3022 to ·1322 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 striæ and serrated lines, with a few short, nail-like setæ; while on the under-surface are the legs and a few setæ, and sometimes an ovum is to be seen (Fig. 67).

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. 68).

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. 69). When a cuniculus is snipped out with scissors and examined,

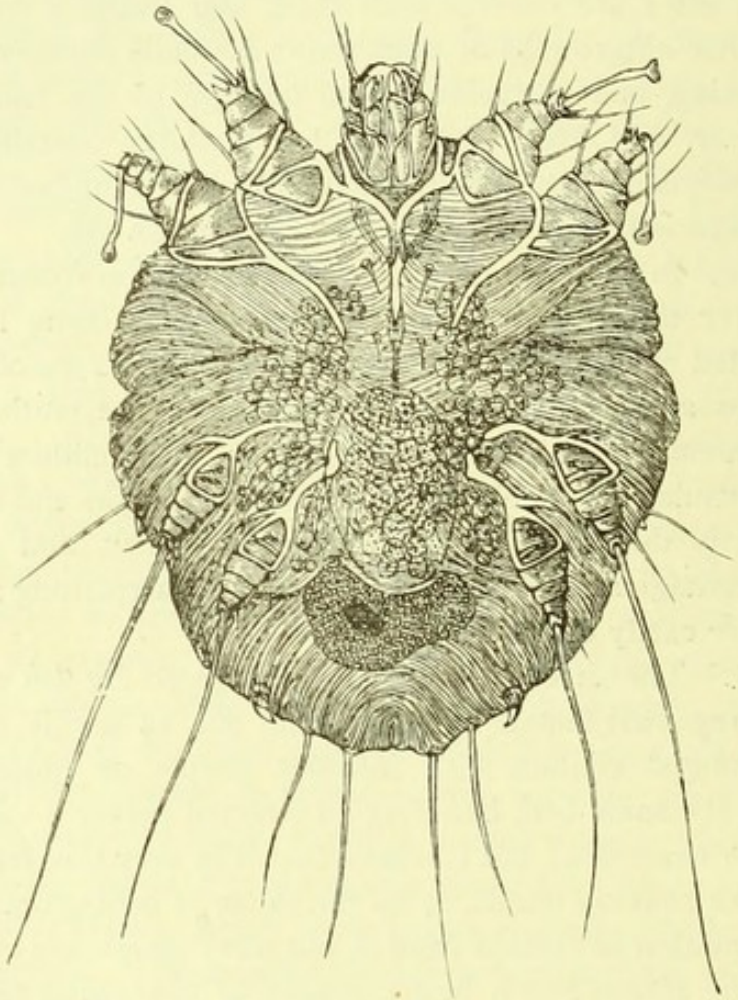


Fig. 67.—Mature pregnant female acarus. × 300 (Kaposi).
In the interior of the abdominal cavity there is a mature ovum ready to make its escape.

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. 70).

Diagnosis.—The diagnosis of scabies may be very easy or very difficult, according to the development of the disease and the 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 most 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 point inserted, when the acarus generally clings to it. A good

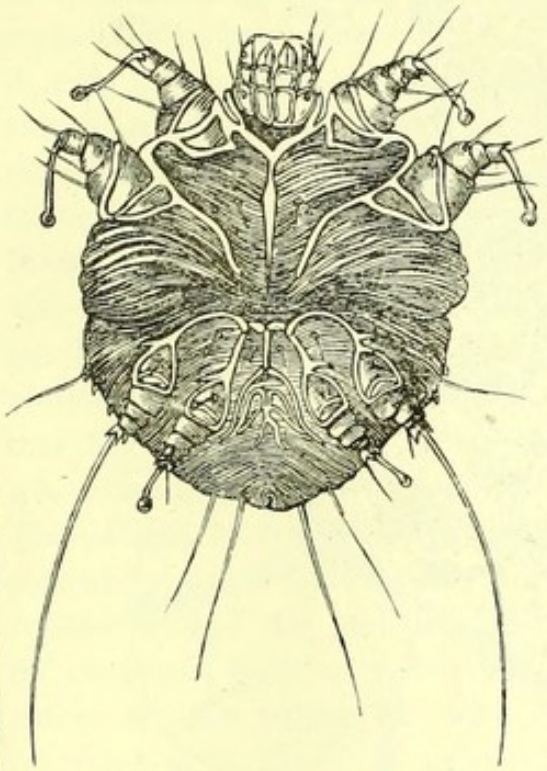


Fig 68.—Male acarus. × 300 (Kaposi).

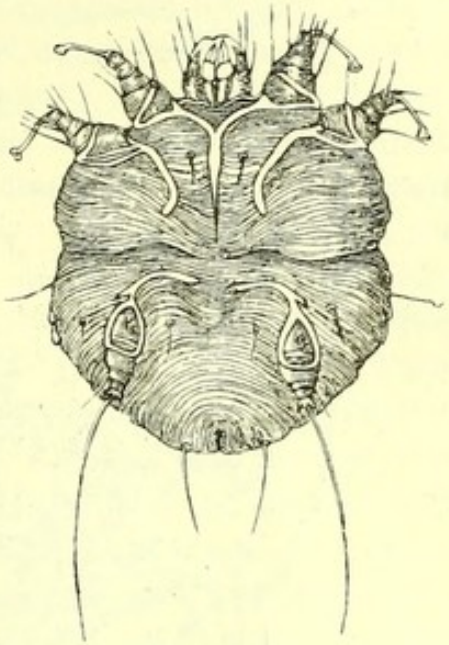


Fig. 69.—Larval acarus with only six legs and comparatively few bristles (Kaposi).

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

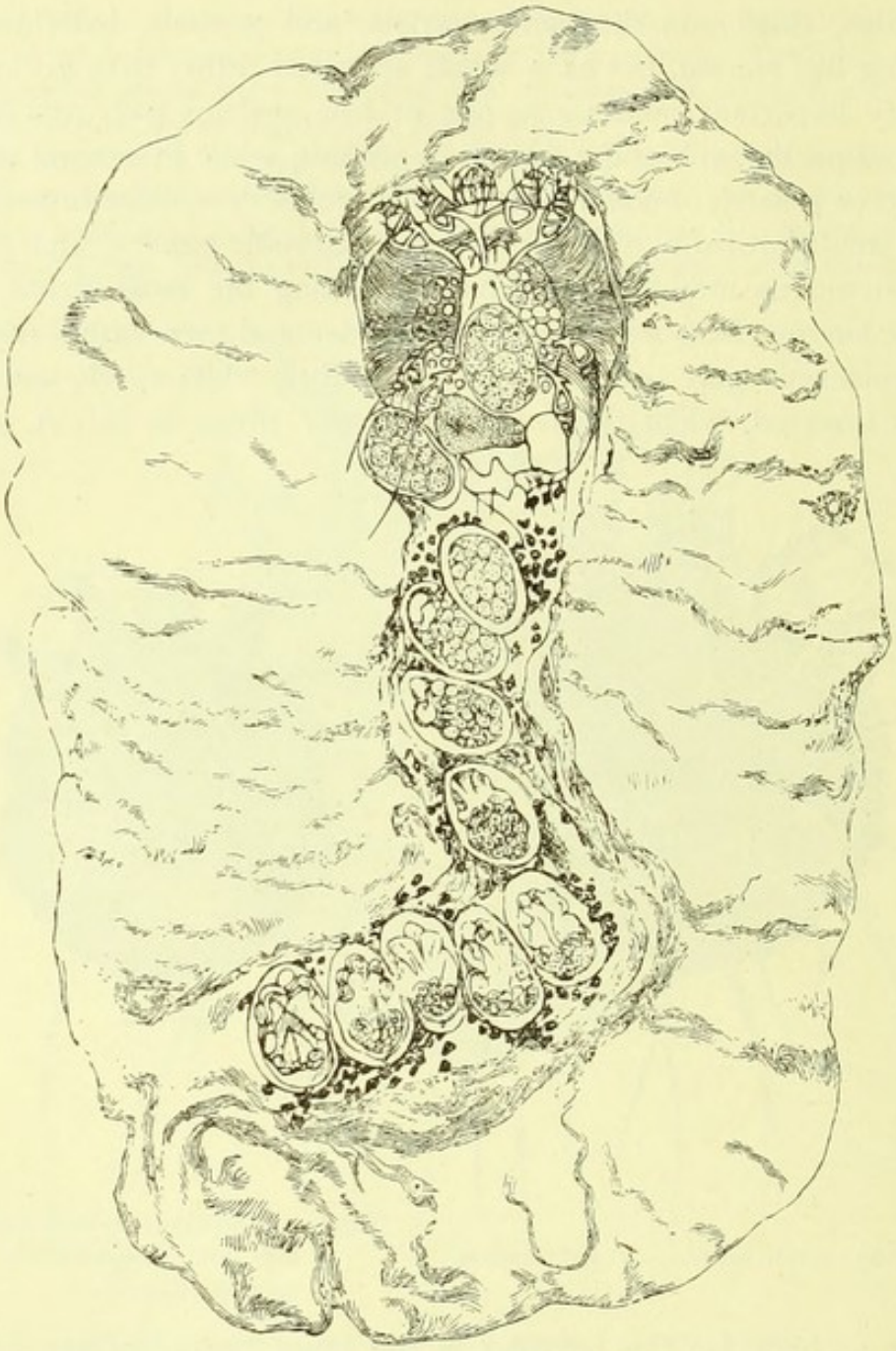


Fig. 70.—A burrow formed by an acarus within the epidermis, containing a female acarus with the head directed to the blind end of the burrow. In the acarus is an ovum. Behind the acarus, and in a row one after the other, with their long axis placed transversely to the long axis of the burrow, there are 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 (Kaposi).

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 reinfection 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 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. Vlemmingkx'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 previous long 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. Some more formulæ are given at the end. Whatever application 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 antipruritic 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 recognize 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. Paint-

ing 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 and 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. The legs are long, six-pointed, and with two claws on the tarsus, and there are no discoverable sexual organs (Fig. 71).

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

Fig. 71.—Six-legged larva of the leptus autumnalis (Küchenmeister).

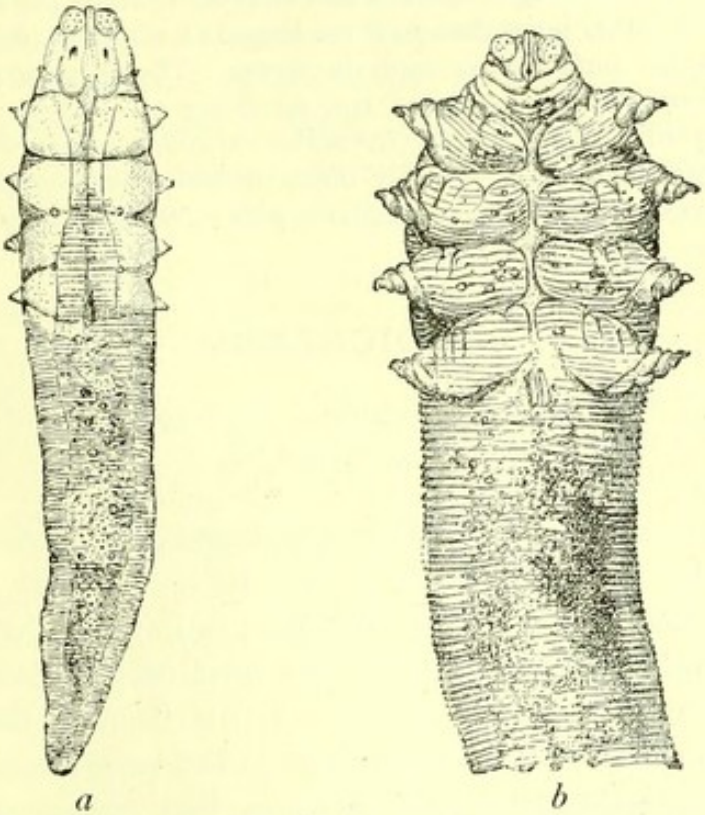
loaders; it is an eight-legged, yellowish-white animal, with an oval boring apparatus, but without sexual organs. It produces urticarial lesions round the mouth of the follicles, and the animals may be found in their neighbourhood beneath the epidermis. In severe cases, the urticaria goes on to more 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



a *b*

Fig. 72.—*a*, fully matured demodex folliculorum, dorsal view; *b*, under surface of anterior portion of body, very highly magnified (Nayler).

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

* Sparks, "Disease of the Skin produced by the Acarus Folliculorum," *Med. Chir. Trans.*, vol. lvii., 1874, p. 239, with bibliographical notices and a plate.

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 $\frac{1}{1\frac{1}{2}}'''$ to $\frac{1}{6}'''$, and has three segments: 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 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. 72).

PEDICULOSIS.

Deriv.—*Pediculus*, the louse.
Synonym.—Phthiriasis.

This term now signifies 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 were supposed to breed in the flesh of the victim, in enormous numbers, and consume 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 also, 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 complication is so constant that a pustular eruption, limited to the occipital region, 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 matting together, along with the pediculi and their *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 may even suppurate. The mothers always state that the lumps came first, then the sores, and then the lice, this reverse 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 economize 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

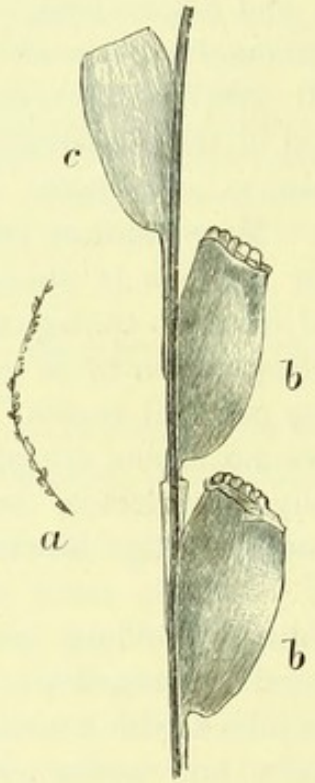


Fig. 73.—Ova of pediculus capitis.

a, natural size of hair with twenty-nine ova upon it; *b*, *b*, ova, magnified, showing the cement attaching the ovum to the hairshaft and the operculum attached; *c*, empty ovum, operculum fallen off.

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 occurs at all ages, but is 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, or comb, etc.

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.

Fig. 74.—Male pediculus capitis, showing its system of tracheæ and its respiratory stigmata (Küchenmeister).

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; and frequent combing will gradually detach the dried-up ova, or the cement will give way by sponging in the same way with a lotion

with 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.

PEDICULUS CORPORIS.

Synonym.—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 slight 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 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. 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 pediculus. 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 black margins. In other respects it is like the head louse, the larger size being the most conspicuous difference (Fig. 75).

Diagnosis.—The diagnosis lies in the conspicuous evidence of scratching on the shoulders and nucha, especially if in an elderly person, in its absence from the hands and wrists, and in the presence 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 reinfection 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.

Fig. 75.—Female pediculus vestimenti (Küchenmeister).

III. Pediculus Pubis. *Synonyms.*—Phthirius pubis; Crablouse; 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 "hæmorrhagic specks" on the adjoining skin are the most obvious feature. The whiskers and beard may also be sometimes attacked, but it is never found on the head.

* Cobbold considers that the lice that affect this position are a distinct species, which he calls the P. palpebrarum.

Being comparatively stationary, of small size, and grey colour, they are easily overlooked. Clinging usually to a couple of hairs, they dig deeply into the orifice of a hair follicle, and excite great and persistent irritation. 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 the irritation.

Besides the pediculi and their nits, which are attached to the hair close to the skin, Morrison, in 1868, showed that fingernail-sized, steel-grey spots of pigmentation (maculæ ceruleæ, taches ombrées) are sometimes observed in the affected areas; and Duguet in 1880-82 showed that this pigment was contained

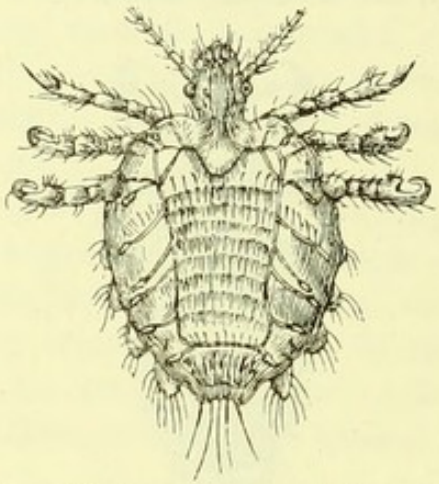


Fig. 76.—The pediculus pubis, or crab-louse (Schmarda).

in the thorax of the animal, opposite the anterior pair of legs, where there are known to be two pairs of salivary glands. The blue spots are more marked in some people than others, and in the months of February, March, and April. They are therefore mere stains of the epidermis, and disappear in a few days after the destruction of the pediculi.

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 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 rounder, 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 terminate in a straight claw, and are used for walking. 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 (Fig. 76). 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 pubis 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. ℥j, æther ʒvj, sulph. ʒij is a good application, and kills the nits; or Peruvian balsam and vaseline, or lard in equal parts may be used; or they may be subjected to the vapour of chloroform. 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 pubis, 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, 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 larva 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 liq. 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.

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.

Oestrus 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

* *Literature.*—Smith records 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.

† *Brit. Med. Jour.*, Feb. 12th, 1870.

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.

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 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.

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.

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 feelings of tension and itching.

* *Clin. Soc. Trans.*, vol. viii., p. 44, with Report, and vol. xvii., p. 75.

† *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).

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 tetanus, or from 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 was 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, 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 Island 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

extraction 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.

FILARIA SANGUINIS HOMINIS.*

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 really due to the young of filaria sanguinis hominis. On the other hand, Silva Aranjo in Brazil had 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 were described in the skin. Filaria sanguinis hominis is also well known as a cause of lymph abscess, tropical elephantiasis arabum, and lymph scrotum. Niellé 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 at all stages of development, some of them sexually mature females, which he thought belonged to a species of leptodera of the family of the anguillulidæ, a view with which Geber agrees, and regards it as identical with craw-craw. 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.

* *Literature.—Lancet*, vol. i., 1875, p. 265, with illustration of the worm.

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 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 unusually large, are exposed to pressure, or in the rare event of suppuration taking place. Their interest lies chiefly in their diagnosis. They may be mistaken for gummata, lipomata, sarcoma, carcinoma, and sebaceous cysts. Careful consideration of all the circumstances and symptoms will generally lead to a suspicion of their nature, which will be confirmed by excision of one of the tumours, or even puncture, 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 incapsulated 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.

* *Viertelj. f. Derm. u. Syph.*, vol. iv., heft. 4.
† *Berlin klin. Woch.*, No. 26, 1877.
‡ *Lancet*, vol. i., 1879, p. 753.

APPENDIX.

FORMULÆ.

IMPORTED 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 **Pullna, Friederichshall, Hunyadi-Janos, Æsculap,** and **Victoria Ofener.** Of these I use Friederichshall for a mild and Hunyadi-Janos for a stronger aperient, but some prefer Pullna to Friederichshall, 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 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 fœcal 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 Desirée 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 tumblerful 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 tumblerful 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.

ARSENICAL WATERS.

The chief are those of 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 tumblerful 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.

Both 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 Belgian 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° Fahr., 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 of diet, 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 Eau 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 and Eau Chaudes may be specially mentioned.

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 Germany, 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 having the strongest arsenical waters known. The composition of the waters and their uses have been described under "Imported Waters." The two chief springs are the Choussy and the Pevière. The season is during July and August. It is especially useful in psoriasis.

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.

Plombieres in the Vosges is another lofty sanatorium, 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° F. 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 Cæsar, 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.

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.

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 $3\frac{3}{4}$ of the Pouhon.

Vals, in 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, Prècieuse and Désirée, containing 100 grains less, while the strongest spring in Vichy (Celestins) contains 357 grains to the gallon.

Vichy, in 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 Grande Grille and the Celestins 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.

Harrogate does not lie quite so high as Buxton, and is celebrated for the number and variety of its springs, which are nearly one hundred in number. 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 twice as much sulphuretted hydrogen as the Harrogate springs, and more uncombined sulphur than either Harrogate or Aix-la-Chapelle. The climate is mild, and the scenery round 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.**

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; a variety of apparatus is sold for home use. From 15 to 30 grains of calomel may be volatilized 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 may faint during their use. At University

College Hospital I find that the heat required to volatilize 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 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, and 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 of iodide of potassium. Use as the iodine.

6. **Sulphuret of Potassium.**—℥ij to ℥iv to each bath. The balneum sulphuris co. of Startin 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-iij, 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). 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). 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 ℥vi. Lupus and syphilis (Startin).

6. **Barium.**—Barium sulphide ℥ij, zinc oxide and starch each ℥iij, 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 iodide ℥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 stage 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, gr. 10-40 in spirit of nitrous æther ℥j. May be painted on in some cases of eczema, especially about anus and genitals, and in some other chronic inflammations.

11. **Zinc.**—Zinc chloride ℥iv, liq. opii. sed. (Batley) ℥iv, starch ℥jss, water ℥j. Make a paste (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 Felix).

LOTIONS.

STIMULANT LOTIONS.

Tar.

1. Liq. carbonis detergens ℥ij, solution of the subacetate of lead ℥ij, rose-water ℥viij. For eczema and pruritus

2. Liq. carbonis detergens, diluted 1 to 4 or 1 to 8 with water or spirit may be painted on in chronic eczema.

3. Liquor carbonis detergens ℥ij, calamine lotion ℥viij.

Soft Soap.

4. Oil of cade, soft soap, and alcohol, equal parts, oil of lavender ℥jss (Anderson). Similar to Hebra's tr. sapon. viridis cum picc. 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.

5. Soft soap, or green soap, in alcohol, equal parts; Hebra's spiritus saponatus viridis. To remove scales of psoriasis and seborrhœa.

Sulphur.

6. Precipitated sulphur, alcohol ää ℥j. For acne (Hebra).

6*a*. Sulphur, alcohol, æther, glycerine, carbonate of potash, of each ℥ij, rosewater ℥viij for acne, or without the water rubbed in for comedones.

7. Sulphuret of potassium ℥ss, limewater ℥xvj. For pityriasis versicolor, pustular and parasitic diseases.

8. Sulphuret of potassium, sulphate of zinc, of each ℥j, rosewater ℥iv. For acne indurata (Bulkley). Duhring speaks highly of the same lotion for lupus erythematosus.

Mercury.

9. Perchloride of mercury gr. 4, dilute nitric acid ℥j, dilute hydrocyanic acid ℥j, glycerine ℥ij, water ℥viij (Startin's lotio hydrargyri bichloridi). Use in syphilitic eruptions, pityriasis versicolor, chloasma, etc.

10. Perchloride of mercury gr. 1, distilled water ℥ij = 1 in 2,000 nearly. For syphilitic sores.

11. Perchloride of mercury gr. 8, distilled water ℥iv, sulphate of zinc and acetate of lead of each ℈ij, alcohol ℥ij. Hardy's lotion for freckles.

12. Perchloride of mercury gr. 6, diluted acetic acid ℥ij, borax ℈ij, rosewater ℥iv. For freckles (Bulkley). Apply twice a day.

13. Perchloride of mercury gr. 2, tincture of benzoin ℥ss, almond emulsion ℥j. For freckles (Duhring).

Silver.

14. Nitrate of silver gr. 2 to 10, water or spirit of nitrous æther ℥j. For eczema and erythemata.

Thymol.

14 *a*. Thymol ℥j, liq. potassæ ℥j, 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 and in lupus erythematosus.

16. Hammamelis tincture 1 part to water 4 parts. For dilated capillaries.

17. Tannic acid gr. 40, French vinegar ℥ss, water ℥vijss. For seborrhœa (Neligan), and in hyperidrosis.

18. Alum gr. 20, sulphate of zinc gr. 10, glycerine ℥j, rosewater ℥iv. For erythema, intertrigo, and eczema (Tilbury Fox).

19. Boracic 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 ℥ss, water a quart. In urticaria, and as a wash for the head in seborrhœa.

22. Borax, carbonate of ammonia, of each ʒjss, glycerine ℥j, diluted hydrocyanic acid ʒiij, water ℥xvj. For vesicular and sebaceous diseases diluted 1 to 4 times (Startin).

23. Carbonate of potash ʒij, water ℥viij. In the early stages of eczema, to allay itching.

23*a*. Potassium cyanide ʒj, water a pint. To be kept in a dark place. For pruritus. Use with caution.

24. Soda bicarbonate ʒj or ʒij, glycerine ʒjss, elder-flower water ℥vj. Urticaria, some eczemas, and pruritus.

25. Liq. carbonis detergens ʒij, water ℥viij. For pruritus, urticaria, and eczema, when not too acute.

26. Carbolic acid, 1 in 60 of water. For pruritus and urticaria.

27. Terebene ℥j, water ℥viij. For pruritus and urticaria.

28. Sanitas ℥ij to ℥iv, water to ℥viij. 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 ℥j. This can then be diluted with glycerine, alcohol, or water to any extent. ℥j of the first mixture, ℥j alcohol, water to ℥viij, is a good proportion. Very useful in pruritus and urticaria, and does not smell.

30. Menthol gr. 2 to 10 to water ℥j.

31. Solution of acetate of lead ʒij to ʒiv, distilled water to ℥viij. For same.

32. Perchloride of mercury gr. 2, glycerine ℥ss, chloroform water to ℥viij. For same.

33. *Hydrocyanic acid dilute* ʒj, corrosive sublimate gr. 1, emulsion of almonds or elder-flower water ℥vj.

33*a*. *Hydrocyanic acid* ʒjss, acetate of ammonia ℥j, infusion of tobacco to ℥viij. 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 ℥viij. For senile pruritus (Neligan).

35. *Cyanide of potassium* gr. 15, water ℥viij. For pruritus pudendi (Hardy). Keep in a dark place, and use with great caution.

36. *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.

37. *Benzoic acid* ʒij, water ℥viij. For pruritus and urticaria.

SEDATIVE ASTRINGENT LOTIONS.

Lead.

38. *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.

SOOTHING AND PROTECTIVE 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.

3*a*. Lanolin ʒvj, olive or almond oil ʒij. Lanolin alone is too sticky.

Rumex.

4. 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.

Cucumber.

5. Cucumbers 750 parts, rectified spirit 25 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.

Any of the above ointments may be used as a menstruum for more active remedies.

SEDATIVE ASTRINGENT OINTMENTS.

Bismuth.

6. Bismuth oxide ʒj, oleic acid ʒviij, white wax ʒiij. 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. It may also be made by double decomposition.

Boracic Acid.

7. Boracic acid ʒss, benzoated lard ʒj. It is very important that the boracic 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.

8. *Ung. diachyli* (Hebra).—Boil together olive oil ʒxv, litharge ʒiij et 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 plaister and olive oil. These ointments are really oleates of lead.

9. Solution of the subacetate of lead ♏xv to ♏xxx, vaseline, lanolin, or lard ʒj.

10. Lead (carbonate of) gr. 4, glycerine ʒj, simple ointment ʒj. For erythema (Tilbury Fox.)

Zinc.

11. Prepared lard ʒvj, 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 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.

12 *Zinc oleate*, as devised by Mr. Marshall, was made by dissolving ʒj of oxide of zinc in v iij 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, and 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.

13. Iodoform gr. 3 to 5, vaseline or lard ʒj.

14. Iodol gr. 3 to 5, vaseline or lard ʒj.

Both these ointments are valuable for pustular eczema, impetigo contagiosa,

etc. Coumarin gr. 3, or musk gr. 1, may be added to the iodoform to conceal the disagreeable odour, an objection from which iodol is free.

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. B.P., ung. hyd. nitrat. and also dil. B.P. All these are useful separately or combined, strong or diluted, in chronic eczema, sehorrhœa of scalp, and psoriasis.

16. Green iodide of mercury gr. 2 to 15, lard ʒj. For acne (Hardy).

17. Red iodide of mercury gr. 5 to 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 10, lard ʒj. To be used in the same way as the iodides.

Sulphur.

18. Iodide of sulphur gr. 10 or ʒj, lard ʒj. For acne.

19. Powdered hypochloride of sulphur ʒij, subcarbonate of potash gr. 10, lard ʒj, 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 Derivatives.

20. Ung. picis B.P. For psoriasis and chronic eczema. (*a*) Kreasote, (*b*) oil of cade, (*c*) ol. rusci, ʒj or more of either to ʒj of lard, is much used for psoriasis and chronic inflammations.

21. Tar ʒj, camphor gr. 10, lard ʒj. In chronic eczema and other inflammations with pruritus.

Lead.

22. Iodide of lead gr. 12, chloroform ♏xx, glycerine ʒj, lard ʒj. For eczema and psoriasis.

Miscellaneous.

23. Perchloride of mercury gr. 2 to 5, carbolic acid and olive oil of each ♏xx, benzoated oxide of zinc ʒj (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 ℥j. 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 ruber.

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. Camphor and chloral equal parts rubbed up together. It makes a thick liquid useful for severe local itching.

7. (*a*) Oil of cade, (*b*) beech or (*c*) birch oil, ʒj to ʒiv, olive oil to the ℥j. For psoriasis, lichen ruber planus, etc.

PLAISTERS.

Emplastrum Fuscum of Germans.

1. Camphor ʒss, black pitch ʒvj, yellow wax ʒjx, red oxide of lead ℥ij, 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 plaister ℥jss. Spread upon linen. For acne rosacea, lupus vulgaris, and erythematosus.

Salicylic Acid Plaister (Unna).

3. It consists of 38 per cent. and 50 per cent. of the acid, equivalent to 25 or 10 grammes of the acid on ½ of a quarter of a meter. It is made by Beiersdorf of Hamburg, and is valuable for softening and removing corns, callosities, and other epidermic thickenings.

Salicylic Acid and Kreasote.

4. This is a similar plaister, with the addition of kreasote to diminish the pain produced when the plaister 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. kreasote up to 40 per cent. of each.

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.

Kreasote.

4. Kreasote ♏xvi, kaolin ℥j (Marshall). For erysipelas, erythema, eczema, etc.

Tar.

5. Wood tar 1 part, kaolin 4 parts (Sangster). For the same.

6. "Pasma," a proprietary name for an oleate of starch, is also useful for excoriations.

Boracic Acid.

7. Impalpably powdered boracic acid 1 part, and kaolin, rice starch, or fuller's earth 3 parts. A very good powder for intertrigo.

Camphor.

8. Camphor ʒss, alcohol *q.s.*, oxide of zinc and starch āā ℥j. 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 with sulphur gr. 10. Mix and add olive oil ʒij, kreasote ♏iv = ung. sulphur co. of Startin for scabies.

3. *Wilson's Formula.*—Sulphur ℥j, carbonate of potash ʒij, benzoated lard ℥v, oil of chamomile ʒss. Less irritating than B.P.

4. *Helmerich's Formula.*—Sulphur ℥ij, carbonate of potash ℥j, lard ℥viij.

5. *Hardy's Formula.*—Sulphur ℥j, carbonate of potash ℥ss, lard ℥vj.

6. *Wilkinson's Formula.*—Sulphur, tar, and lard, of each ℥ij, precipitated chalk ℥j, sulphide of ammonium ʒss. For tinea tonsurans and scabies.

7. *Hebra's Formula.*—Sulphur, oil of beech or oil of cade, of each ℥iij, lard and soft soap, of each ℥viij, prepared chalk ℥ij.

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.

9. *Cazenave's Solution.*—Iodide of sulphur, iodide of potassium, of each ʒjss, water ℥xxxij.

10. *Liquor Calcii Sulphidi.*—Quicklime ℥j, sulphur ℥v, water ℥xx. Boil for half an hour and filter. Make the quantity up to ℥xx. For scabies and psoriasis.

11. *Vlemingkx's Solution.*—Quicklime ℥ij, sulphur ℥iv, water ℥xx. Boil in an iron vessel until ℥xij remain, stirring with a wooden spatula to a perfect union, then filter. 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. flav. B.P. For pediculi capitis.

14. Ung. hyd. ammon. B.P. For pediculi capitis.

15. Oleate of mercury, 5 per cent., ℥j, æther ℥j, alcohol ℥j. For pediculi capitis; destroys the nits also (Marshall).

16. Perchloride of mercury gr. 4, acetic acid ℥ss, water ℥viij. 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 4, acetic acid or glacial acetic acid ℥ Makes a blister (Alder Smith). Use cautiously over a small area at a time.

19. Acetum cantharides 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 should be 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.

Boracic Acid.

23. *Boracic Acid.*—Boracic acid ℥iv or *q.s.*, sulphuric æther ℥v, rectified spirit ℥xx. To make a clear saturated solution. To be dabbed on with a sponge, so as to soak into the scalp (Cavafy). Said to make stumps fall out.

Chrysarobin.

24. Chrysarobin gr. 10 to 20, benzole ℥j.

25. Chrysarobin gr. 7, chloroform ℥j (Alder Smith). For same purpose as boracic acid solution.

26. Chrysarobin ℥ss to ℥ij, 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 3 in alcohol ℥j.

29. Perchloride of mercury gr. 2 to 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 5 to 20 per cent. with or without lanolin, a very good preparation.

Salicylic Acid.

31. Salicylic acid gr. 40 to 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 plaister with some benefit, and the glycerine cream over a limited area.

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. Chemical oleate of copper ʒss to ʒij; lanolin c̄ oleo ℥j. Valuable for tinea tonsurans. May be combined in equal proportions with mercurous 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.

Turpentine.

38. Perchloride of mercury gr. 2, rectified spirit ʒj, turpentine ʒvij.

38 *a*. 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. Aloine gr. $\frac{1}{5}$, strychnia gr. $\frac{1}{60}$, extract of belladonna leaves gr. $\frac{1}{8}$. 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.

Asiatic Pills.

4. 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 give them 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 60, acid tartrate of potash gr. 10 to 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, bicarbonate of soda gr. 3, 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).

Both very useful 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 gr. 10, spirits of juniper ♏xv, infusion of broom ℥j. Before meals, well diluted.

For Dyspepsia.

8. Soda bicarbonate gr. 10 to 15, sal volatile ♏x, compound infusion of gentian ℥j. Half an hour before meals.

9. Soda bicarbonate gr. 10, tincture of nux vomica ♏viij, syrup of orange ʒss, dill water ℥j. 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 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 ʒjss, dilute sulphuric acid ♏xv, infusion of quassia to ℥j. For acne vulgaris, eczema, etc. "Startin's mixture."

17. Syrup of the iodide of iron B.P. ʒss to ʒj, 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 ʒss, 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 ʒj, simple syrup ♏xx, water ℥j.

20. Fowler's solution ♏v, citrate of iron gr. v, 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. $\frac{1}{16}$, iodide of potassium gr. 5, infusion of calumba ℥j, sal volatile ♏xv. For syphilis, especially in the tertiary stage.

25. Liquor arsenici et hydrargyri iodidi or Donovan's solution, dose ♏v to ♏xxx, with a bitter infusion ℥j, contains gr. $\frac{1}{8}$ of arsenious acid, gr. $\frac{1}{4}$ of red oxide of mercury, and gr. $\frac{3}{4}$ iodine converted into hydriodic acid. It is useful in many chronic scaly eruptions, as well as syphilides.

26. Bicyanide of mercury gr. $\frac{1}{16}$, 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 libris 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 sarzæ concisæ ℥vj, aquæ fontanæ libris 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 ℥iij. 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); and if the action of the bowels be sluggish, the purgative should be repeated in the evening of the fourth day (Wilson).

Miscellaneous Mixtures.

28. Oil of turpentine ♏x to ♏xxx, oil of lemon ♏ij, mucilage of acacia ℥ss, water ℥ss. 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 ℥j. For pruritus and prurigo (Bulkley).

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