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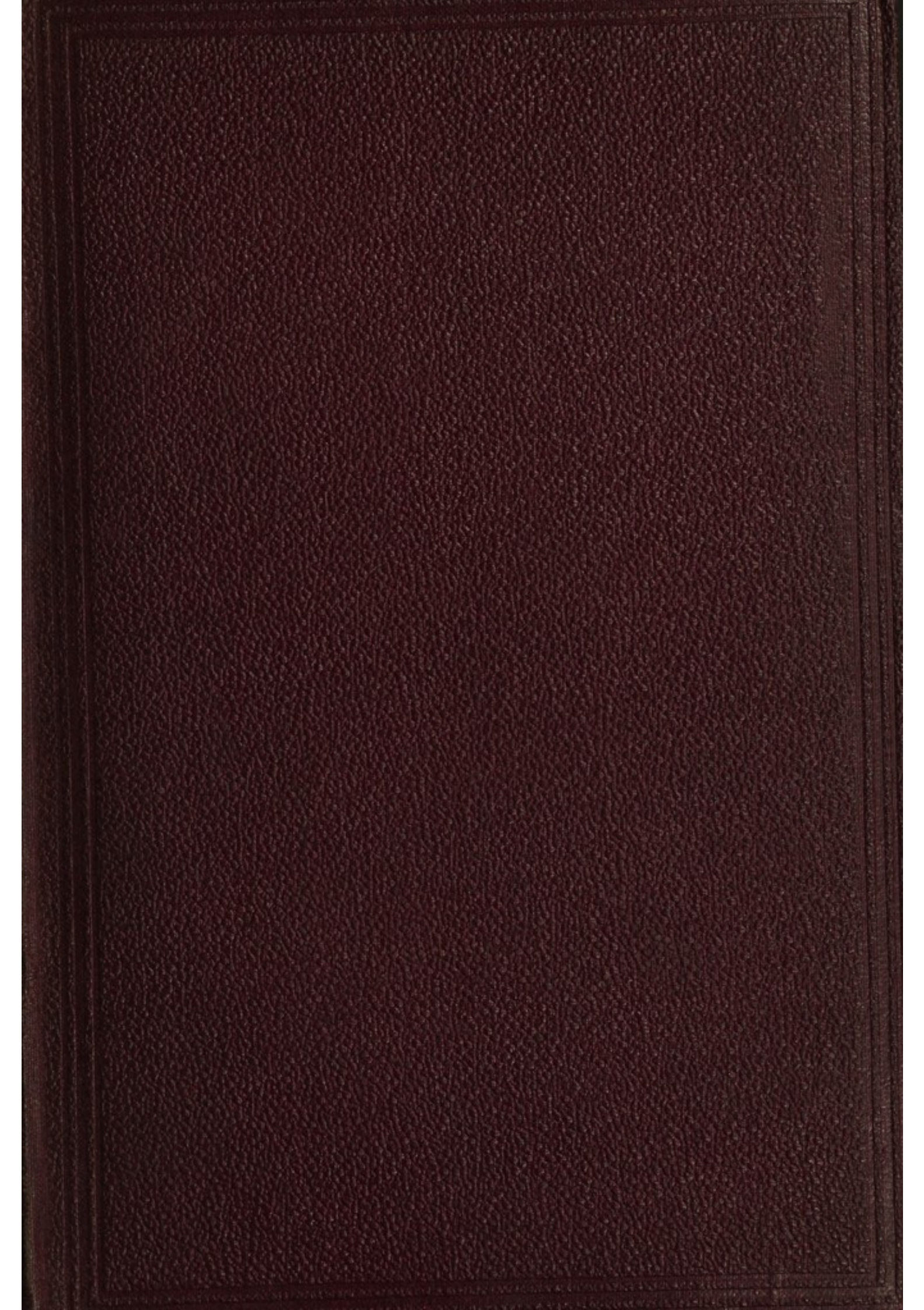
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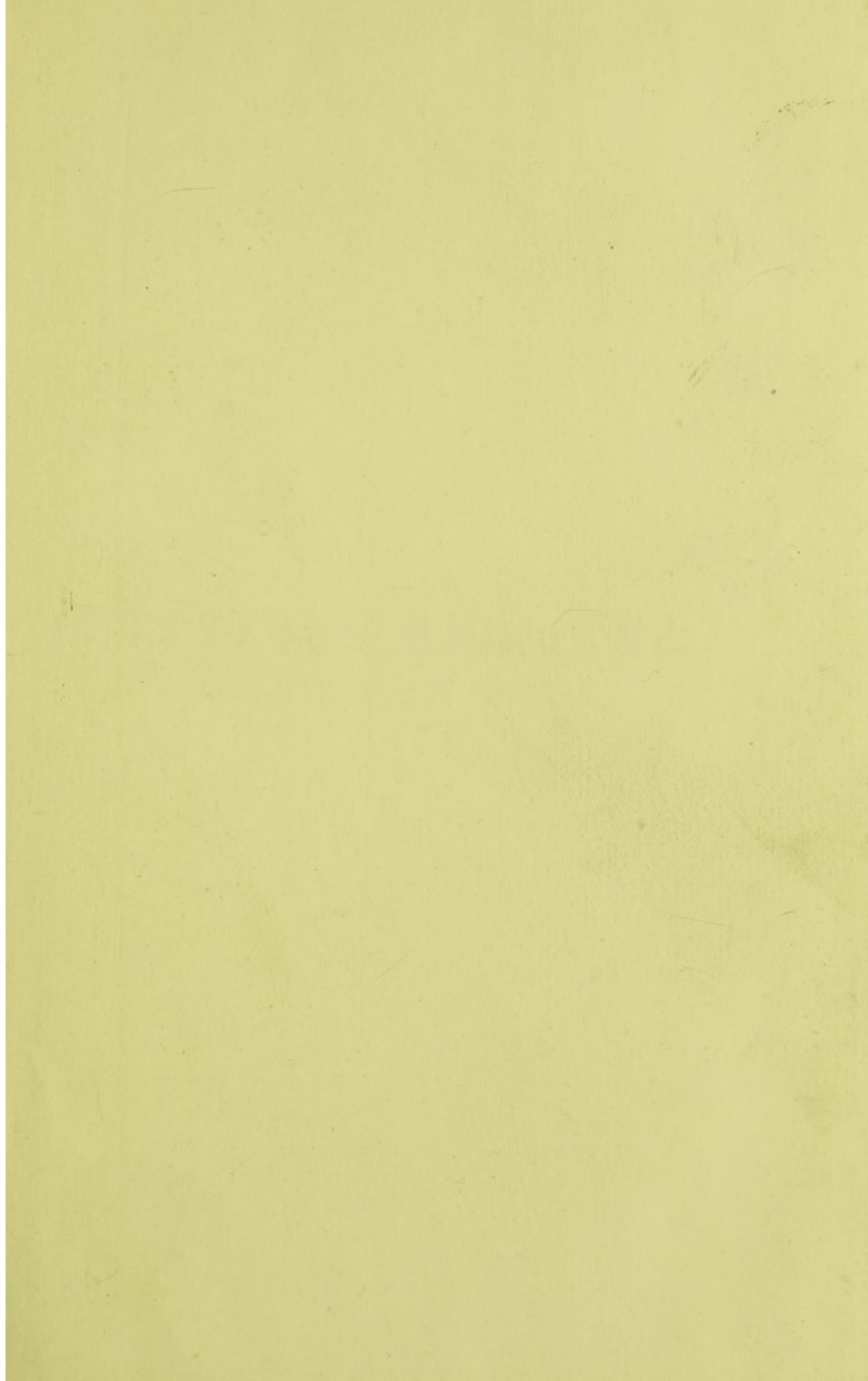
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CUTANEOUS MEDICINE.

OSTEOPATHIC MEDICINE

THE
STUDENT'S BOOK
OF
CUTANEOUS MEDICINE
AND
DISEASES OF THE SKIN.

BY
ERASMUS WILSON, F.R.S.



LONDON :
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THE
STUDENT'S BOOK

CUTANEOUS MEDICINE

DISEASES OF THE SKIN

LONDON :

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NOTICE.

THE endeavour to supply the Student of the present session with a Class-book on diseases of the skin, has rendered it necessary to publish the STUDENT'S BOOK in two parts; of which the present is the first, and the second will follow in the course of a few months. This arrangement it is hoped will be found the less objectionable, from the fact of the present part embracing the anatomy and pathology of the skin; the classification of its diseases; and the descriptive history of some of the most important of its affections: for example, the first nine groups of cutaneous diseases, and notably, the family of the ECZEMATA.

NOTICE

THE following is a copy of the report of the President of the Board of Trustees of the University of California, made at the meeting of the Board held on the 10th day of June, 1892, at the University of California, Berkeley, California.

The report contains a full and complete statement of the affairs of the University during the year ending June 30, 1892, and also a statement of the financial condition of the University at that date.

The report is divided into two parts: the first part contains a statement of the affairs of the University during the year ending June 30, 1892, and the second part contains a statement of the financial condition of the University at that date.

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P R E F A C E.

I N publishing a STUDENT'S BOOK OF CUTANEOUS MEDICINE AND DISEASES OF THE SKIN, we believe that we are supplying a want in Medical Literature. Great Britain has many scientific treatises devoted to the subject; some original, the greater part founded on the works of the French or of the Germans; and an abundance of translations from foreign authors; but we have no elementary book that the Student can call his own; no Class-book; no book founded on BRITISH CUTANEOUS MEDICINE, that is, upon Cutaneous Diseases such as they occur in this country, and exist amongst us at the present day, and treated upon principles which long experience has shown to be the best suited to the instincts and peculiarities of the British mode of thought, and of the British medical constitution. We have endeavoured to produce such a book, and we have taken as the groundwork of our teachings, the experience of many years conscientiously devoted to the discovery of the soundest views of the subject, and the soundest principles.

The first progress made of late times in Cutaneous Medicine, was that instituted by our countrymen, WILLAN and BATEMAN; and we are proud to reflect, that the system of Willan has been for many years the standard classification of Diseases of the Skin throughout Europe and America. It is the Linnæan system applied to diseases of the skin; and no higher praise can be accorded to it. But, just as the Linnæan system called into being the system of Jussieu, and we are left in doubt which most to admire, Linnæus or

Jussieu ; the Willanean system suggested the construction of a natural classification, similar to that applied by Jussieu to the vegetable kingdom. A NATURAL CLASSIFICATION is the want of the hour ; and a natural classification, if it could be attained, would, without doubt, be an important gain to our science. Alibert invented such a classification ; Hardy has revived it ; but we must confess that neither the classification of Alibert nor that of Hardy is such as to meet with our approval.

In the present work we have framed a classification, founded on the clinical history of diseases of the skin ; we have arranged these diseases into *twenty-two* groups ; and we believe, that for all practical purposes, the arrangement will be found sufficiently simple and comprehensive. Should it be adopted in future years as a classification worthy of being remembered, of being made the basis of study of these diseases, it may, very truly, be represented as a CLINICAL CLASSIFICATION.

We have not left out of view the necessity for the student of being thoroughly acquainted with the skin in health, previously to undertaking the study of its diseases ; and we have preceded our chapters devoted to the twenty-two groups of diseases, by one on the Anatomy and Physiology of the Skin ; and we have followed the chapter on Anatomy and Physiology, by one on the Pathology of the Skin, and the classification of its diseases.

Our aim has been to simplify, to endeavour to restore to General Medicine, a department of much interest and importance, and, by furnishing the Student with a clear view of these diseases, to remove them from the narrow sphere of Specialism to the wider and nobler field of Catholic Medicine.

HENRIETTA STREET, CAVENDISH SQUARE,

November 1, 1864.

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THE STUDENT'S BOOK OF CUTANEOUS MEDICINE.

CHAPTER I.

ANATOMY AND PHYSIOLOGY OF THE SKIN.

THE SKIN is the external surface-membrane of the body, to which it serves as a covering or integument, and being *common* to the whole body, is sometimes called the common integument. It is firm, pliant, and elastic, adapting itself naturally to all the movements of the trunk and members, and resisting pressure and injury coming from without. Hippocrates regarded it not only as an investing and a protective covering, but also as a ligament serving to bind together the body and limbs; and Plato, pursuing the same idea, compares it in its operation to a fisherman's net.

If we follow the skin from point to point, over the whole surface of the body, we shall find it to present some variety of character and appearance. On the head it is smooth and pale, and spotted with the numerous openings or pores which give passage to the hair. On the face it is coarse in texture, furnished with hair in certain situations, more vascular than elsewhere; and at the borders of the eyelids, of the nares, and of the mouth, it exhibits the transition of the external surface-membrane into the internal surface-mem-

brane, or mucous membrane. On the back of the neck and of the trunk, and on the outer side of the limbs, it is remarkable for its thickness and density, as compared with the front of the neck and body, and the inner side and flexures of the limbs. In the former situation it is more or less smooth; in the latter, and particularly at the joints, it is marked by folds and wrinkles, which represent the lines of motion of the skin. In the flexures of the joints, as of the armpits, the elbows, the wrists, the groins, the ham, the fingers and toes, and in the interdigital spaces, the integument is thin, and deeply marked by the lines of motion; while on the convexities of the joints the skin is thick and dense, and also strongly marked with the lines of motion. In certain parts of the trunk, as upon the shoulders, on the breast, in the armpits, on the mons pubis, on the scrotum, and on the perineum, there is hair, more strongly developed in the male than in the female. Certain parts of the skin, as of the scalp, the chin, and the pubes, are remarkable for the accumulation of subcutaneous fat; while in other parts, as of the eyelids, the penis, and the scrotum, the fat is altogether wanting. Finally, a striking modification of the skin, adapted to resistance and protection, is met with in the palm of the hand, the sole of the feet, and the ungual extremities of the fingers and toes; in the latter situation constituting the nails.

In STRUCTURE, the skin presents two layers,—the derma, or true skin (*cutis vera*, *corium*), and the epidermis, or scarf-skin, or cuticle. The derma is connected with the parts underneath by means of cellular or areolar tissue. This is its deep surface; while, by its superficial surface, it is in close contact with the epidermis. The connection of the deep surface of the derma with the parts beneath is, in some situations, dense and close, as on the cranium, on the nose and ear, on the upper lip and chin, on the pubes and perineum. In other situations it is remarkable for its looseness, as on the eyelids, the penis and scrotum, and the

convexities of joints. Where the adhesion is close, the *areæ* of the subcutaneous tissue are small, and filled with fat; where it is loose, the *areæ* are large, and moistened by a serous fluid, which, under slight irritation, is apt to accumulate and give rise to *œdema*. The presence of loose cellular tissue, as a connecting medium of the derma, permits of a greater freedom of motion between the skin and the parts beneath, as occurs at the elbows and knees. Daniel Turner* quotes a curious case of looseness of the integument, which, as it may serve to impress upon the mind of the student the physiological fact, we will here transcribe:—

“Of the wonderful dilatability of this part I have heard nothing that comes up to that in the young Spaniard Meekrin takes notice of, who, in the hospital at Amsterdam, showed himself to Van Horn, Silvius, Piso, and other learned physicians, taking up with his left hand the skin of his right shoulder and pap, and bringing the same up to his mouth. Again, he would draw the skin of his chin down to his breast, like a beard, and presently put it upwards to the top of his head, hiding both his eyes therewith. After which, the same would return, orderly and equally, to its proper place, lying smooth, as in any other person. After the same manner, the skin of the right knee and leg he would pull, either upwards or downwards, for half a yard’s length; whilst—which was yet more remarkable—the skin of his left side would not admit of any such expansion.”

The DERMA is composed chiefly of white fibrous tissue,

* Daniel Turner was the author of a curious and interesting volume, entitled “A Treatise of Diseases incident to the Skin,” published in 1712. As an old English author we have reason to be proud of his work; and we may remember him, moreover, by the association of his name with a very valuable remedy in cutaneous medicine,—namely, Turner’s cerate, at present known as the *ceratum calaminæ*.

which, in its deepest part, forms a strong network, with oval or circular meshes ; the strands or fasciculi of the network being of about half the breadth of the areæ. In proceeding outwards, we find that the network becomes finer, both in respect of the fasciculi and of the meshes ; and, as we approach the surface, assumes the character of a fine but dense spongy tissue. The large meshes of the under surface of the derma are filled with fatty tissue, and give passage to the blood-vessels which supply the surface of the skin, and also to the lymphatic vessels and cutaneous nerves ; and the finer areæ of the superficial portion support the ultimate ramifications of the vessels and nerves, together with the capillary and nervous plexuses.

Looking to the constituents of its structure, the derma is a compound tissue, consisting of a framework of white fibrous tissue, with which muscular tissue, and yellow elastic tissue, are intermingled ; and supporting and maintaining in its areolar spaces, fatty tissue, together with arteries, veins, capillary vessels, lymphatics, nerves, and, as we shall see further on, hair-follicles and glands. The average thickness of the derma is half a line ; on the back of the trunk it measures in depth about three-fourths of a line ; while on the heel the measurement is more than a line, and sometimes as much as a line and a half.

Viewing the two surfaces of the derma,—the superficial and the deep, there appears a very manifest difference between them ; the latter a coarse and firm network of white fasciculi and large open spaces, with a scanty supply of vessels and nerves ; the former a fine spongy tissue, seeming to be made up almost wholly of capillary vessels and minute nerves, and bristling on the surface with minute, semi-transparent, finger-like papillæ. This difference between its deeper and its superficial part has caused a distinction to be made between them, which is expressed by the terms *pars reticularis* and *pars papillaris*, or papillary layer. The distinction is arbitrary : there is no line of

division such as would constitute different layers. In structure the pars reticularis may be said to merge imperceptibly into the pars papillaris, and it is only on the actual surface that the papillary element becomes apparent.

As we ascend into the atmosphere, which is, as it were, the derma of the earth, we find it, though dense below, becoming more and more rarefied as we rise to the superficial regions; so is it also with the derma of the body. Composed of coarse tissues below, these tissues become finer and finer in the upper stratum, until in the most superficial of all we find, as the chief element, an imperfect areolar tissue, of the simplest composition; and finally, on the actual surface, a thin, transparent, varnish-like lamella, an organic membrane without structure of any kind,—the boundary, or limitary, or basement membrane. Elaboration and structure seem to be exhausted; and a structureless formative element is all that remains to finish the work.

The PAPILLARY LAYER of the derma, or pars papillaris, is developed on its surface into minute papillæ, some of which are simple, and others compound. The former are, some cylindrical, some conical, and some clavate and slightly flattened, while the compound papillæ divide at the summit into two or three, and sometimes four or five simple papillæ, and form a kind of tuft. In structure, a papilla is composed of an imperfectly developed areolar tissue (partly homogeneous and nucleated, and partly fibrillated), surrounded and inclosed by the structureless limitary lamella, and contains in its centre either a capillary loop or a nerve-fibre; in the former case constituting a vascular papilla, in the latter a nervous papilla. We are thus made aware of the existence of two kinds of papillæ; one intended for secretion, the other for sensation: and the presence of a capillary loop and a nervous fibril in the same papilla is an exceptional occurrence, and would seem, when it happens, to result from the accidental fusion of two papillæ of opposite kinds. The nervous papilla is further distinguished

by the presence in its centre of an oval or fir-cone-shaped body, called by Wagner *corpusculum tactûs*, and by Kölliker, from its position in the axis of the papilla, axile corpuscle; and Huxley has shown that this conical mass is a bulbous development of the termination of the neurilemma, in and upon which the nerve-fibre, after splitting up into several ultimate fibrils, is seen to end.

On the general surface of the body, the papillæ are disposed irregularly, and have a considerable interval between them. On certain parts, as on the nipple, the glans penis, glans clitoridis, and labia minora, they are more numerous, and are assembled more closely; while on the palm of the hand, the sole of the foot, and the bed of the nail, they are most abundant, and are collected into linear groups, which give the appearance of the fine lines characteristic of those surfaces. Weber estimated that in a square line of the palm of the hand there were 81 compound papillæ, and between 150 and 200 simple ones. The papillæ differ also in size; being short on the surface generally, longer on the palm and sole, and on the nipple, where they measure from $\frac{1}{30}$ to $\frac{1}{20}$ of a line; and longest on the matrix of the nail, where they reach $\frac{1}{12}$ of a line, and on the the labia majora. The longest papillæ are one-half or two-thirds longer than the breadth of their base; whereas the shorter ones are as broad as, and in some instances broader than, their length.

Yellow elastic tissue is mingled in considerable quantity with white fibrous tissue in the structure of the derma. It forms a network by the interlacement of its fibres, and is met with even in the papillæ. Smooth or unstriped muscular fibre also forms an abundant element of its structure, in certain parts constituting a muscular layer of considerable thickness, as in the instance of the dartos of the scrotum, in the areola of the nipple, and around the nipple itself; and in the superficial portion of the derma it is collected into minute fasciculi, the muscles of the hair-

follicles, *arrectores pili* (Eylandt), which arise in the upper stratum of the corium, immediately beneath the limitary lamella, and proceed obliquely inwards to the follicles, into the outer layer of which they are inserted, just below the sebiparous gland. Dr. Lister has shown that the arrector pili is situated on the sloping side of the hair-follicle, and is therefore placed in the best position for protruding and erecting the hair. The presence of muscular structure in the corium explains to us the intrinsic movements of the skin; the erection of the pores in *cutis anserina*; the contractile action of the scrotum and *areola mammæ*; the erection of the nipple; the hard bleached tubercles and wheals of *urticaria*, and probably, the crawling and creeping sensations experienced in the skin. The term *spasmus periphericus* is not inaptly applied to this action.

The EPIDERMIS, or CUTICLE, lies in contact with the limitary surface of the derma, following all its irregularities, forming hollows for the reception of the papillæ, descending into the hair-follicles and sudoriparous and sebiparous glands, and lining them throughout under the name of epithelium. Along the edges of the eyelids, at the margin of the apertures of the nares and mouth, and at the border of the external apertures of the *meatus urinarius*, the vulva, and the anus, the epidermis is continuous with the epithelium of the mucous membrane.

The epidermis is a dense, horny, but flexible layer, secreted by the derma, and deposited upon it as a defensive covering, screening it from violence by its toughness, and checking the evaporation of the fluids of the derma by its density. It varies considerably in thickness; being thin on the eyelids, on the penis and scrotum, on the back of the hands and feet, in the flexures of the joints, in the interdigital spaces, on the scalp, on the front and sides of the trunk, on the front and inside of the arms, and on the back and inside of lower extremities; thick, on the back of the trunk and upper extremities and front of the legs, and

thickest of all on the palm of the hands and sole of the feet ; while, at the extremities of the fingers and toes, it is so far modified in thickness and in density as to constitute the nails.

As the derma is arbitrarily divided into a pars reticularis and pars papillaris, so, also, is the epidermis divided into a pars cornea, or horny portion, and a pars mucosa, or soft portion, the rete mucosum. The rete mucosum is the deep and most recently formed layer of the epidermis, that which lies in contact with the liminary layer of the corium, which is in course of development and elaboration, and, consequently, the immature part ; while the horny layer is the fully-developed and mature portion of the epidermis, and becomes more and more dense and horny as it approaches the surface. The division of the two portions is purely arbitrary ; the deepest two or three layers being regarded as rete mucosum, while the superimposed more numerous and condensed layers constitute the epidermis proper.

In structure, the epidermis is composed of cells—of nucleated cells—which, in the rete mucosum, are polygonal in form, about $\frac{1}{2500}$ of an inch in diameter, contain a large and well-defined nucleus, cell-contents, and pigment-granules, and are surrounded by a thin and imperfect cell-membrane ; but which, in the horny portion, are transformed into flattened scales about four times larger than the mucous cells ($\frac{1}{600}$ of an inch), the nucleus of the scales having become invisible, from transparency, and the pigment-granules pale from chemical alteration ; the chief constituent of the whilome cell being the cell-membrane, now converted, by compression and evaporation, into a thin and horny scale. The changes accompanying the maturity of the cell, and the conversion of the mucous cell into a horny lamella or scale, take place immediately above the rete mucosum. The transformation is completed long before the mid-thickness of the epidermis is reached, and, as we perceive, the change is not simply one of growth, but also of chemical transform-

ation and metamorphosis. The cuticle is not produced as a horny albuminous membrane, but becomes so as the result of nutrition and development.

The constant formation and growth of the epidermis, by means of the rete mucosum, is the contrivance by which an uniform thickness of the cuticle is maintained. This layer is continually undergoing wear and destruction at the surface, and the loss is as continually compensated by the regular process of formation taking place underneath. Where the formative process is most active, there the greatest thickness of epidermis is attained, as on the palm of the hands and sole of the feet. In these situations the papillæ are most abundant, and the relation subsisting between the papillæ and the cuticle is shown by the small ridges which represent the rows of papillæ which clothe the surface. The removal of the superficial layers of the epidermis is also favoured by the construction of the tissue,—namely, of minute scales, which, as soon as they become loosened, fall away from the surface in the form of a fine dust; and, when their connections are softened by water, are washed away with every ablution.

The rete mucosum has another claim to our interest, in being the seat of colour of the skin,—of that colour which distinguishes the races of mankind, and has its extremes in the European and the Ethiopian. The colouring matter, or pigment, consists of minute granules, which are identical in appearance with other granules constituting the chief element of the epidermic cell, and differ from the latter only in possessing an amber or reddish-brown colour, and, possibly, a different chemical composition. These granules, taken separately, are globular in form, and have a diameter of $\frac{1}{20000}$ of an inch. They are collected in greatest number around the nucleus, and are intermingled with paler granules in the cavity of the cell. The depth of colour which they occasion is due to their aggregation; for alone, their tint of colour is very slight, even in the rete mucosum of the negro skin.

As the rete mucosum is merely the young epidermis, and as it is quite evident that the epidermis is much less deeply tinted than the rete mucosum, and, in the negro, is almost white as compared with the latter, we are led to infer, as is probably the fact, that the pigment-granules undergo some chemical alteration or metamorphosis in the progress of development of the epidermic cell, which destroys the colouring principle, and that the development of the cell takes place in some measure at the expense of this organic element. But there is a further explanation of the whiteness of the epidermis,—namely, in the large production of albumen, which forms the chief bulk of the epidermic scale, and which would tend still further to subdue the colour of any pigment that might remain in the desiccated scale.

A simple inspection of the epidermis shows another peculiarity of much interest,—namely, the delineation of the surface by a number of lines. These lines are furrows, and a part of the apparatus of motion of the skin, consisting of coarser lines, corresponding with the movements of the joints, and finer lines, corresponding with the intrinsic movements of the skin. The lines of motion are transverse and divergent on the flexures, and transverse and convergent on the convex side of the joints, and leave between them triangular and polygonal-shaped areae; those on the side of the flexures being narrow and elongated, and those on the convexities being broader and shorter. The lines of motion of the skin itself originate at the apertures of the hair-follicles and glands,—the pores, and radiate as from a centre, for the most part impinging upon other pores, and sometimes on other radiating lines. From the larger pores there proceed from six to ten radiating lines, which usually run to adjoining pores, and form a number of triangular areae; and within these areae are smaller pores, with an equal number of finer lines, forming smaller areae. On the shoulder of a child five years of age we counted, in a

square inch of skin, sixty large and six hundred small pores. The radiating lines from these pores were arranged in the manner just described, and had the appearance of a delicate mosaic pattern. The large pores were the centres of as many polygonal wheels, with large triangular areas; and within these areas were arranged the smaller wheels and smaller triangular spaces. The pore is therefore a centre, to which the apices of six or eight triangles converge, and the drawing together of these points serves to produce erection of the pore. On the scalp, the lines of motion form curves between the hairs, and the areas are elliptical in figure.

The NAILS are a modification of the epidermis adapted to the special purpose of protecting the extremities of the fingers and toes. They are situated over the expanded ends of the last phalanges, bedded upon the corium, and overlapped at their base and at the sides by a fold of the skin, constituting the lateral and posterior wall of the nail. The nail is convex on the outer surface and concave beneath, and has two extremities,—one free; the other, the *root* of the nail, being overlapped by the posterior wall to the extent of about two lines. The furrow or follicle which is so formed is the *vallecula unguis*.

On a closer inspection, the nail presents some diversity of colour; it is pale towards the root, the pale portion being bounded in front by a semilunar line, and thence called *lunula*. It is pink throughout the rest of its extent, excepting at the free extremity, where it is detached from the corium. Moreover, the nail is marked by longitudinal lines, some of which are pale and others pink: the former correspond with horny longitudinal laminae situated on its under surface; the latter with plaits of the corium interposed between the horny laminae.

When the nail is detached, the surface of the corium upon which it lies embedded—the *matrix* of the nail—is brought into view. The matrix is continuous at the sides

with the corium of the lateral walls of the nail, and at the bottom of the vallecule with the surface of the posterior wall. The whole of this surface is highly vascular; that of the posterior wall is smooth, as is also a narrow strip at the line of separation of the free extremity of the nail; but the rest of the matrix is clothed with ridges and lamellated plaits or folds of the corium. At the bottom of the vallecule are several transverse ridges corresponding with the border of the root of the nail; and these ridges are studded with papillæ of considerable size. The lunula is furnished with longitudinal ridges, and beyond the semi-lunar line the ridges of the lunula expand into the longitudinal plaits or folds of the body of the nail. These longitudinal plaits are deepest in the middle, and shallower on each side and towards the free extremity of the nail, and in the latter situation are broken up into irregularly-formed and elongated papillæ; finally, beyond the broken ends of the lamellæ is situated the smooth strip which forms a transition to the derma of the tip of the finger or toe. The longitudinal lamellæ are studded with papillæ along their free borders, and these vascular fringes are the cause of the pink longitudinal lines seen through the transparent nail; while the general vascularity of the lamellæ produces the deep tint of pink which distinguishes the body of the nail from that which covers the lunula. The horny nail is continuous at each side with the epidermis of the lateral wall; at the free extremity, the under surface of the nail is blended with the epidermis, which seems, as it were, to bifurcate at this point; and along the edge of the posterior wall, the epidermis becomes attenuated, and is spread out and lost on the surface of the nail. The nail is thicker in the middle, where the vascular lamellæ of the corium are the largest, than at the sides, where they are smaller, or over the lunula, where they are absent altogether; the thickness of the nail being proportionate to the extent and activity of the vascular surface. The root of the nail is

thin and soft, while the free extremity is three times thicker than the root, and has a tendency to follow in its growth the curve of the tip of the finger.

The growth of the nail is effected by the synchronous formation of cells upon its whole under surface, and along the border of the root. The cells added to its lower surface give thickness to the nail; those deposited along the free border of its root press it forwards and give it length; and the formative action constantly in operation produces the movement forward which constitutes what is generally understood by the growth of the nails. If, for one moment, we reflect upon this process, we shall see the reason of the occasional abnormal growth of the nail, sometimes in length, but more frequently in thickness.

There are few structures in anatomy more interesting than those concerned in the adhesion of the nail to its matrix, an adhesion so firm, and yet so slight as to permit of the movement of the entire nail forwards on its bed, and by the agency of a power apparently so unequal to such an effort,—a row of minute cells, deriving their strength simply from their nutritive power and growth. We remember in our student days, wondering over the results of a similar power occurring in the vegetable world. A huge millstone lay upon the ground near the edge of a copse; a young and slender sapling, like a playful child, raised its feathery head through the hole in the middle of the stone; a few years slid by, and then the sapling was a sturdy plant that had grown to the full size of the hole in the millstone; it was no longer play; the plant was inconvenienced by the pressure of the heavy mass. What would it do? A few more years saw the remarkable issue; the plant upheaved the massive stone from the earth and bore it, as it were upon its shoulders, into the air: such is the gigantic force of nutritive power, or rather of nutritive life. The adhesion of the nail to the matrix is mainly effected by the intervention of the horny laminae of the nail and the vascular plaits of

the corium ; they lie side by side in mutual embrace ; the horny laminae, sixty or seventy in number, are secreted by the plaits of the corium, and grow by the superaddition of new cells generated by the vascular structure. When left to themselves, the nails attain a certain length, and then, it is said, they cease to grow, and, like the hair, are probably shed ; but the habit of paring them, common in European countries, maintains a perpetual growth.

Viewed by the side of the epidermis, with which it is analogous, the nail will be seen to be harder, denser, whiter, less flexible, and more transparent, more nearly approaching in its characters to horn, and in fact presenting a higher condition of development. Like epidermis, it consists of a mucous and a horny layer ; the mucous layer being composed of nucleated cells containing pigment, and in their progress towards the surface being converted into scales. The scales, however, are denser and thicker, and the nucleus firmer and larger, so as to be visible in the perfected scale, while in those of the epidermis it is with difficulty discoverable. A section of the nail shows a laminated texture like that of the epidermis, but more transparent and dense, together with pigment-granules which are commonly arranged in streaks. There is a difference also in regard to chemical composition ; the greater density of nail being due to the presence of a larger proportion of phosphate of lime. Thus it would appear, that in proportion to the energy of nutritive metamorphosis, the cell of the mucous layer is altered in its nature and composition, and is changed from a soft opaque mass, consisting of nucleus, pigment-granules, and embryonic covering, into a dense, transparent, colourless scale, without pigment or visible nucleus ; in other words, that the opaque matter, the pigment matter, and the nuclear matter, are spent and exhausted in the elaboration and perfection of the horny albuminous scale.

A French physician, Dr. Beau, has made some interesting observations on the rate of growth of the nail, having

reference to its relation with the duration of illness. He finds that the nails of the hands grow four times as fast as those of the feet, the former increasing in length at the rate of one millimetre ($\frac{1}{5}$ of a line) a week; the latter requiring four weeks for the same amount of growth. Then, assuming the thumb nail to measure from root to free extremity eight lines, or twenty millimetres, it would take twenty weeks, or five months, to attain its complete growth; while the nail of the great toe, measuring nine lines and a half, or twenty-four millimetres, would require for complete growth ninety-six weeks, or very nearly two years. Next, Dr. Beau remarks, that during illness, although growth in length continues as usual, the material of growth is furnished less actively, and, consequently, the nail formed during this period will be thinner than during the period of health; and the deficiency of horny matter may be distinguished on the surface of the nail in the form of a transverse groove. If the invasion of the illness be sudden, the anterior wall of the groove will be abrupt, and *vice versa*; and if the return to health be rapid or gradual, the posterior border of the groove will present a corresponding incline. On these data, Dr. Beau suggests the possibility of determining the period of occurrence of an illness, and also its duration. For example, a groove crossing the thumb nail transversely, its anterior border measuring eight millimetres from the extremity of the root, or five from the margin of the posterior wall, would indicate an illness that commenced eight weeks before; and the breadth of the groove being two millimetres, the illness will have existed for two weeks. After five months, the groove will have become obliterated, and the thumb nail no longer an index of the malady. Then, however, the nail of the great toe may be appealed to, and will continue to be a guide for ninety-six weeks. At five months the groove has advanced only five millimetres from the edge of the root, and is just becoming apparent beyond the margin of the

posterior wall, while the groove itself is only half a millimetre in breadth. Dr. Beau prefers the thumb nail and great toe nail for this observation, because the appearances are more marked in them than in the rest of the nails.

The development of the nail is first apparent at the completion of the third month of embryonic life. At this period the seat of the future nail is covered by ordinary epidermis, and the first preparations for the nail are shown in the gradual elevation of the boundary-wall of the matrix. A month later there exists a thin horny plate, adherent to the matrix, and covered by the epidermis. This plate progressively increases in thickness during the fifth and sixth months, and during the seventh month moves forward in length. At the sixth or seventh month after birth the foetal nail is shed, and a new permanent one takes its place.

PORES AND FOLLICLES.—The skin is perforated in every part of its surface by numberless openings, which are called *pores*. The pores are the openings of cylindrical tubes which penetrate for a certain depth into the derma, and sometimes extend beyond its limits; and these tubes taken collectively present a surface organized like that of the skin and of an equal and possibly superior extent. We may, therefore, look upon the skin as offering for our study two surfaces,—an apparent and external surface, and a concealed or follicular surface. The cylindrical tubes are the *follicles* of the skin, and they are divisible into three groups,—hair-follicles, sebiparous follicles and glands, and sudoriparous glands.

These three groups of tubules have a similar organization; they are highly vascular, have a limitary surface-layer like that of the external superficies of the corium, and are lined by a structure analogous to the epidermis; namely, the epithelium. Where they are prolonged deeply, beyond the limits of the reticular portion of the corium, they are followed to their termination by a vascular plexus;

by an external fibrous membrane derived from the corium, and are equally lined within by epithelium. Moreover, the hair-follicles are provided with minute muscles, which possess the power of erecting the hairs and protruding the summit of the follicles, and thus of giving rise to that appearance which is termed *cutis anserina*, or goose-skin.

The hair-follicle is a simple cylinder, traversing the skin obliquely, and terminating sometimes in the substance of the corium, and sometimes, after piercing the latter, in the subcutaneous cellular tissue, surrounded by adipose cells. From the bottom or fundus of the follicle a papilla arises, upon which the hair is formed, while the circumference of the hair is moulded by the inner wall of the follicle. The sudoriparous follicle is also a simple cylinder, more slender than the hair-follicle, but longer, also penetrating the epidermis and derma, and taking its course inwards to the larger areolar spaces of the corium, and sometimes as far as the subcutaneous areolar tissue. Having reached one or other of these situations, and surrounded by adipose tissue, it coils upon itself and forms a small oblong or globular mass,—the sudoriparous gland. Occasionally, the follicle has been seen to bifurcate previously to rolling itself up into the coil of the gland. The sebiparous follicle is shorter than both the preceding, often dilated into the form of a pouch; pursues a similar course through the skin, but to a lesser depth, and divides into branches, which, by their subdivisions and aggregations, constitute a compound gland often of considerable size. The sebiparous gland in different situations presents every degree of complexity of structure, from a simple follicular pouch, to the compound structure of the mammary gland, which is nothing more than an aggregation of large sebiparous glands, modified to suit the special purpose of producing, like the sebiparous gland, an oily secretion, namely, the milk. Another peculiarity of the sebiparous gland is, that it very commonly opens into a

hair-follicle, particularly into the follicles of the larger hairs.

HAIR-FOLLICLES AND HAIRS.—Every part of the skin is furnished with hair-follicles, and organized for the production of hairs, with the exception of the palm of the hands, sole of the feet, and that occupied by the nails. But there are situations in which also they are commonly absent; for example, the upper eyelids, the penis, and the last joints of the fingers and toes. The hairs present much variety in length and thickness, and admit of being divided into four groups; namely, long and fine, long and stiff, short and stiff, and short and fine. The *long and fine* hairs are represented by the hairs of the head, which in a state of health are long, fine, and silky. The *long and stiff* hairs are typified by those of the beard, of the whiskers, of the axillæ, of the pubes, and, in hirsute persons, the hair of the scapular region of the back, the hair of the chest, of the abdomen, and of the limbs. The *short and stiff* hairs are the hairs of the eyebrows, the eyelashes, the vibrissæ narium, and the hairs of the meatus auditorius. The *short and fine* hairs include the finest hairs, the down or lanugo of infants and young persons, the fine hairs of the so-called hairless parts of the body, and the less fine hairs of the trunk and limbs; to which may be added the hairs of the mucous glands of the conjunctiva, the carunculæ lachrymales.

The hair is a sexual character in all animals, and is not less so in man. In both sexes it is met with pretty equally developed in certain situations; for example, on the head, the eyebrows, the edges of the eyelids, the armpits, and the pubes. But in the adult male the distribution of the hair is more extensive; for example, the beard and whiskers, on the chest, the shoulders, and thoracic portion of the back, and the abdomen; and the limbs are generally more hairy in the male than in the female. There are often a few scattered long hairs around the areola of the female; and

the disposition of the hair at the pubes is a characteristic feature of the sexes ; in the female being limited to the upper boundary of the mons Veneris, but in the male ascending in a pyramidal figure to the umbilicus. It has been inferred from the robust character of the male as compared with the female, the stiffness and rigidity of the beard and whiskers, and the general hirsuteness of the trunk and limbs, that the hair of the head was coarser in men than in women, and this idea is favoured by the habit of wearing the hair long in the one and short in the other sex. But our observations, founded on numerous microscopic measurements, are opposed to this view, and we have found that the hair of the head is coarser in woman than in man.

The moment of life when the body is the most universally hairy, is that of birth ; it is then covered with a short fine hair or down, the *lanugo*,—a temporary crop, which is afterwards shed, and gives place to the permanent hair. This is the period when the arrangement of the hair upon the surface of the body may be most conveniently studied, and when some curious phenomena may be ascertained. The oblique position of the hair with reference to the surface is the first point to attract attention ; and in the next place it will be discovered that there is a law of arrangement of the hair, as well as of development and growth, and that the direction or *set* of the hair is always the same. Thus on the summit of the head is a kind of central point or corona, from which the hair radiates on all sides, with a gentle curve, sweeping from right to left behind, and from left to right in front : this constitutes the natural lay or set of the hair of the head. On the forehead, the hair sweeps from the middle line in a gentle curve to the right and to the left, forms the upper half of the eyebrow, and descends over the temple to become the central part of the whisker. At the inner angle of the eye is a facial centre of radiation, from which a vertical line of divergence descends by the

side of the nose and mouth to the lower jaw, and then curves forward to the underpart of the chin. From the facial centre at the angle of the eye, the hair sweeps round with a gentle curve and is distributed over the root of the nose, along the eyelids, and over the upper part of the face. The rays that pass upwards and inwards meet the corresponding rays from the opposite side, and form a crest; while those that ascend meet the currents from the line of divergence of the forehead, and produce a second crest, which, when strongly developed, connects the eyebrows across the root of the nose. The rays that sweep across the upper eyelid form the lower half of the eyebrow, while those that pass along the lower eyelid are lost in the front of the whisker. From the vertical line of divergence, the currents sweep obliquely inwards and outwards, those that pass inwards clothing the side of the nose and constituting the outer and converging portion of the mustachio and of the beard; while those that pass outwards sweep over the cheek, and are lost in the whisker, in the middle line of the nape of the neck, and along the lower border of the jaw. The mustachio arises from the lip below the opening of the nares, and sweeps outwards; and along the margin of the central part of the lower lip another diverging stream sweeps outwards into the beard on either side.

The direction of the hair upon the trunk of the body is governed by a centre of radiation, situated in each axilla, and two lines of divergence, proceeding from each centre, one running forwards to the middle of the sternum, the other downwards along the flank, across the hip, and down the inner side of the thigh to the ham. The currents proceeding from these centres are directed *inwards* and *upwards* upon the chest and neck, to the line of the lower jaw, and across the side of the neck to the middle line of the back; *inwards* and *downwards* to the umbilicus; and from the lower half of the abdominal vertical line, *inwards* and *upwards*, also to the umbilicus. So that the umbilicus

becomes the centre of four converging currents, two from above and two from below. The currents that pass backwards from the axillary centre, and from the vertical line, sweep gently outwards and downwards to the middle line of the back.

In the arm, the currents proceed from two lines of divergence; one, derived from the axillary centre, surrounds the upper part of the arm like a ring; the other takes its origin from this ring, and runs along the front of the arm in a pretty straight direction, to the cleft between the thumb and forefinger on the back of the hand. From the upper border of the ring the hairs ascend to the shoulder, and sweep backwards to the middle line of the back; from the lower margin of the ring, and from the vertical line, they descend with a curve to the elbow; from the vertical line in the forearm, they sweep downwards in front and upwards behind, and also make their way to the elbow; so that the elbow becomes a centre of convergence. And on the back of the hand, and of the fingers, the direction of the sweep is downwards and outwards, towards the outer border of the hand.

The source of the currents on the lower extremity are two vertical lines of divergence; one being that which descends by the side of the abdomen, and, after crossing the hip, runs along the inner side of the thigh to the ham; the other, a line which begins at the hip and descends the outer side of the thigh, also to the ham; then passes along the outer side of the leg, and reaches the dorsum of the foot, terminating at the space between the great and second toe. The currents proceeding from these two lines pass downwards and inwards, towards the front of the thigh, and converge to the knee; those on the back of the thigh ascend towards the buttock and trunk. On the leg, where one line only exists, the diverging currents sweep around the limb and meet upon the shin; while on the foot they diverge with a sweep outwards and upwards, as on the back of the hand.

The principal centres of radiation are that of the crown of the head, the inner angle of the eye, and the axilla. The principal lines of divergence are, that of the vertical centre of the forehead, the side of the nose, mouth, and chin, the pectoral line from the axillary centre, the abdominal and internal crural line, the armlet line, the humeral line, and the external crural line. The principal centres of convergence are, that at the root of the nose, on the sternum, the umbilicus, the elbow, the buttock, and the knee; and the principal lines of convergence, the ridge of the nose, the submaxillary line, the median line of the nape of the neck and trunk of the body, and the front of the thigh.

A HAIR, taken separately, consists of a shaft, a point, and a root. The *point* is conical, and blunt at the end; and in long hair is commonly removed artificially, either by cutting or by attrition; in which case the extremity is not unfrequently ragged, and sometimes split into several fibrous ends, and sometimes into a brush-like tuft. The *shaft* is more or less cylindrical, sometimes oval or fabiform in its outline, and sometimes unequally flattened, and varying in figure in different parts of its length. The *root* is the part included within the follicle; it is more uniformly cylindrical and somewhat thicker than the shaft, and at the extremity is dilated into an oval mass, the *bulb*, which is from two to three times thicker than the shaft. Furthermore, the bulb is implanted on a papilla, which rises through the fundus of the follicle.

It is apparent that the hair, in the course of its growth, varies in its figure and dimensions; that at first it is small and pointed; that the bulb is larger than the root; that the root is cylindrical and larger than the shaft; and that the shaft is smaller than the root, and loses its cylindrical figure; the change of figure and reduction of size both being due to the same circumstance, namely, the desiccation of the hair at its escape from the follicle, and the subsequent collapse of its walls. It is the flattening of the

hair by this process that gives rise to waving and curly hair. Sometimes the collapse of the walls of the hair occasions the formation of longitudinal grooves, and sometimes the grooves or the flattening pursue a spiral course along the hair, and produce a shorter curl, like that of the hair of the Ethiopian.

While accounting for the shape of the hair, we may glance for a moment at other of its qualities; for example, its thickness, length, and quantity. According to our ad-measurements, the average thickness of the hair of the head is $\frac{1}{400}$ of an inch, somewhat thicker in the female than in the male, and somewhat finer in the child than in the adult. But the hairs of the same head do not all present the same thickness: some are coarser and some finer; and a difference of diameter is also met with at different points of the same hair. In reference to colour, flaxen hair is the finest, and black the coarsest; chestnut, red, dark brown, light brown, and white, occupying an intermediate position. In the hair of different regions of the body, the range of thickness is as follows:—beard, $\frac{1}{200}$; eyebrow, $\frac{1}{250}$; breast, $\frac{1}{250}$; eyelashes, pubes, and whiskers, $\frac{1}{300}$; head and thigh, $\frac{1}{400}$; axilla, $\frac{1}{450}$; leg, $\frac{1}{500}$; vibrissæ auris, $\frac{1}{1250}$.

The length of the hair varies considerably in different parts of the body. The finest hairs (downy hairs, lanugo) scarcely appear above the level of the skin, while the hairs of the beard and of the head are remarkable for their length. When left to its full growth, as it is in the female, the hair of the head attains a length of twenty inches to a yard; the latter being regarded as unusually long.

The quantity of hair will depend upon the degree of proximity of the hair-follicles. Jahn has given us an observation, from which it would appear that, comparing the hairs of different parts of the body with the head, those of the beard are $\frac{1}{6}$ less numerous; those of the

pubes, $\frac{1}{7}$; forearm, $\frac{1}{10}$; and outer border of the hand and front of the thigh, $\frac{1}{15}$. With respect to the head, Whitof counted, on a square inch of the scalp, of black hairs, 588; chestnut, 648; and flaxen, 728. Having our attention drawn to the same point, we found, in a square inch of scalp of a young man of twenty-five, with black hair, the pores or openings of 744 follicles; and if we take the number of square inches presented by the scalp at 120, the number of pores would amount to 89,280. Now, if we suppose each pore to give exit to a single hair, the number of hairs would be as above—nearly 90,000; but as the pore is in reality the outlet of two or more follicles, we might, in a thick head of hair, have as many as 178,560, or nearly 200,000. Hence we may reasonably infer that the number in a head of average thickness of hair would amount to 120,000.

In structure, a hair is composed of three parts: of a central part, or medulla; a fibrous part, which constitutes its chief thickness; and an investing part, or cuticle. The *medulla* is a cellular structure, consisting of nucleated cells of an oval or globular shape, with the usual constituents of cells,—granules and fluids. The cells are filled with fluid only in the root of the hair; in the shaft it is lost by evaporation, and the cells are consequently found in a state of collapse, or are more or less extensively occupied with air. In this state they are sometimes described as aëriferous cells. It is the refraction of the light by the air contained in the cells of the medulla that gives to it its dark appearance when seen with the microscope. The medulla in some hairs occupies a space equal to one-third the diameter of the shaft; in others it is a mere streak; and in the short and fine hairs is wanting altogether.

The *fibrous portion* constitutes the chief bulk of the hair, is the seat of its colour, and bestows upon it its characteristic properties; for example, its toughness and elasticity. It is composed of fibres resulting from the metamorphosis

of the cells of the papilla or pulp; and the colouring element is distributed through it in the form of dots and streaks. The dots are the pigment-granules, while larger dots result from the aggregation of these granules; but the blackest hair, when seen through the microscope, is found to contain a larger proportion of uncoloured than of coloured material. The pigment-granules in differently coloured hair present every shade of tint, from the amber of golden hair to the deep black of dark hair.

The *cuticle of the hair* is transparent and homogeneous, and marked on the surface by transverse undulating lines. These transversely disposed lines are the edges of minute quadrangular scales or plates, which are derived from the surface of the papilla pili, or pulp, and overlap each other in regular succession, from the bulb to the apex of the hair. The presence of the transverse lines in the form of sharp ridges is detected by the fingers when a hair is drawn between them from the point towards the root; and they are the cause of the not uncommon phenomenon of hairs burying themselves in wounds, under the nails, and between the teeth and the gums. When the cuticle of the hair is examined at its junction with the bulb, it is found to present two layers, a deep and transparent layer, and the superficial and squamous layer just described.

The researches of modern physiologists, and especially of Huxley, have shown an identity of design between the structure of a hair and that of a tooth. The medulla pili is analogous to the cavitas pulpæ of the tooth; the fibrous structure of the one is the dentine of the other; the cuticle of the hair represents the enamel of the tooth; and the squamous surface of the cuticle, the persistent capsule (Nasmyth) of the tooth.

The follicle of the hair, or hair-sac, is identical in structure with the outer skin. It has a lining of epidermis or epithelium, which rests on the structureless limitary layer of the corium; and the limitary layer is supported by two

fibrous layers ; the inner fibrous layer having its fibres disposed transversely, the outer longitudinally. The outer fibrous layer forms the nidus for the distribution of the vessels and nerves of the follicle, and receives the insertion of the *arrectores pili* muscles. The epidermal layer lying in contact with the root of the hair by its inner surface is called the root-sheath. The root-sheath is about as thick, and often thicker, than the diameter of the hair which it incloses, and is made up of several strata of cells. The deepest cells, corresponding with the *rete mucosum*, have a transverse arrangement in reference to the axis of the follicle, while the superficial cells are longitudinal ; those occupying the surface possessing nuclei (Huxley), and those placed between the deep and superficial stratum having no nuclei (Henle).

The fundus of the hair-follicle, or hair-sac, is slightly dilated, and occupied by the papilla or pulp of the hair. The papilla is ovate in form, the base being upwards, and the apex downwards and blended with the subcutaneous tissues. It is analogous to a dermal papilla, but without vessels or nerves, and is surrounded with small globular nucleated cells, the formative elements of the future hairs. The nucleated cells are elongated by development and metamorphosed into the fibrous structure of the hair : the imperfectly metamorphosed cells of the fundus of the papilla constitute the medulla ; while the outermost layer of the papilla is converted into the cuticle of the hair. The hair grows by the production of new cells in the papilla ; the pressure onwards of these cells by successive formation behind, and the conversion of the cells the most in advance into fibres. When a hair is torn from its follicle, the newly-formed fibres are seen at its end in the form of a worn-out paint-brush : the nucleated cells remain behind. Often, when a hair is forcibly pulled out, a portion of the root-sheath is drawn with it, and remains about its end, sometimes forming an irregular mass, sometimes elongated

to a point ; but more frequently curved into the shape of a bulbous hook. It is not the root of the hair that is so turned round and bent, but only the root-sheath.

Growth of the hair has been noted to be more active in youth than in advanced life ; in summer than in winter ; by day than by night ; in hair that is cut than in hair left to its natural growth ; and in hair that is cut frequently than in that which is cut rarely. In a young person of feeble constitution, recently shaved, we found the rate of growth of the hair of the head to be nearly half an inch in the course of a month. Berthold states the rate of growth of the hair in young females between the ages of 16 and 24 to be more than half an inch per month. He observed that the beard shaved every 12 hours grew at the rate of $5\frac{1}{2}$ to 12 inches in the course of a year ; shaved every 24 hours, it grew at the rate of 5 to $7\frac{1}{2}$ inches ; and shaved every 36 hours, it grew only 4 to $6\frac{1}{2}$ inches. Whitof calculated that the beard grew $6\frac{1}{2}$ inches in the course of a year ; and that in 80 years the length would amount to 27 feet.

The development of hair takes place by the protrusion inwards of the cells of the rete mucosum in the form of a bud ; the bud is elongated by growth, and assumes the shape of the future follicle ; a papilla rises from the fundus of the follicle, and very soon a separation is seen to have taken place between the cells of the centre and those of the periphery of the mass ; the former have become dark from the production of pigment, and elongated into the form of a hair ; have become, in fact, the hair and the inner root-sheath ; while the peripheral cells have assumed a transverse position, and constitute the outer root-sheath. As soon as the papilla is formed and has become active, the hair inclosed in the inner root-sheath is pressed upwards to the surface, the inner root-sheath opens, and the hair is liberated.

This is the mode of development of the deciduous hair of the foetus, the hair that is shed immediately

after birth ; but before the shedding takes place, the permanent hair is already in progress of formation ; a bud is protruded from the fundus of the follicle of the deciduous hair, and follows a similar course of development to that already described. When the formative process is complete, the permanent hair pushes the deciduous hair before it in its growth, and eventually takes its place. In after-years, young hairs are no longer produced by this means, but grow from the papilla of the fundus of the follicle. The protrusion inwards of the little mass of cells of the rete mucosum in the early formation of the hair, carries before it the limitary layer of the corium, and also its fibrous tissue ; and these structures, at a subsequent period, become the three layers of the hair-sac.

The first stages in the development of hair—namely, the protrusion of the cells of the rete mucosum—are perceptible at the end of the third month of embryonic life ; visible hair is present at the middle of the fifth month ; and by the end of the sixth month, hair is apparent over the whole body, with the exception of the back of the fingers and toes, the nose, and the external ear. It shows itself first on the eyebrows, next on the upper lip, around the mouth, and on the head ; and by the completion of the sixth month, the hair of the head is a quarter of an inch long ; that of the eyebrows two lines ; and the eyelashes one line. At birth, the child is covered with a thick down, the hairs being pale, without pigment, and without medulla. They are shed during the first year.

In chemical composition, hair differs from epidermis and horn, and also from albumen ; its chief constituents are a compound of protein and sulphur, fat, pigment, salts of iron, manganese, and silica. The quantity of ash is between one and two per cent. White hair contains besides phosphate of magnesia and lime.

SUDORIPAROUS SYSTEM.—The sudoriparous tubules and glands are distributed through the skin of every part of the

body, with the exception of the concha and meatus of the ear, but are most remarkable for number and for size in the axilla ; in the areola of the mamma ; at the base of the scrotum and labia majora, and in the palm of the hands and sole of the feet. The glands are globular or oblong in shape ; of a reddish-yellow colour ; and situated at about the middle depth of the corium, sometimes in the lower stratum of the pars reticularis and sometimes in the subcutaneous cellular tissue. In the axilla they measure from half a line to a line and a half in diameter ; at the base of the scrotum, $\frac{1}{120}$ of an inch ; and in the palm of the hand about $\frac{1}{150}$ of an inch ; the average of their size being $\frac{1}{60}$ of an inch.

The sudoriparous gland is simply the small mass formed by the coil of the sudoriparous tubule ; and issuing from the gland, the tubule ascends to open upon the surface of the epidermis. We therefore speak of it as consisting of two parts, the gland and the excretory duct ; the entire length of the tubule composing the two being about a quarter of an inch. In ascending through the corium, the excretory duct is more or less flexuous ; but in passing through the thick epidermis of the palm of the hand and the sole of the foot, it forms a spiral coil of remarkable regularity, and terminates on the epidermis, by an oblique and apparently a valvular aperture.

On the general surface of the skin, the excretory ducts of the sudoriparous glands,—the sudoriferous ducts,—open without any regularity ; in the axilla, several of the ducts terminate by a common aperture ; while on the palm of the hand and the sole of the foot they open upon the ridges of papillæ, and are disposed with great order, dividing the papillæ into little clumps or groups. On the palmar surface of the hand and fingers these apertures are situated at about one-sixth of a line apart, and on the plantar surface of the foot their distance apart is somewhat more than the fourth of a line. In both situations they may be seen by

the naked eye as small indentations crossing the ridges transversely.

In structure, the sudoriparous tubulus consists of a lining of epithelium appertaining to the epidermis, and of a limitary layer and external fibrous coat derived from the corium. In the large sudoriparous glands, as in those of the axilla, the areola of the nipple, the base of the scrotum and labia majora, around the anus, and sometimes in those of the palm and sole, there is also found a layer of smooth muscle disposed longitudinally between the limitary membrane and the fibrous coat. The epithelium is composed of several layers of nucleated cells analogous to those of the rete mucosum, but has a different physiological destination in the smaller and in the larger glands. In the former it occupies about two-thirds of the area of the tubulus and performs the simple office of an epithelial membrane; in the latter it fills the entire area of the tubulus, the peripheral layers alone performing the office of an epithelium, while the central portion constitutes the solid element of the secretion. When the adhesion of the epidermis to the derma is loosened by scalding a portion of skin or by incipient decomposition, the epithelial lining of the smaller ducts may be drawn out of the tubuli by raising the epidermis gently, and separating it from the corium. At the same time it will be observed that the entrance of the tubulus into the corium is surrounded by a cone of cuticle, which is common to all the cutaneous tubuli, but is very remarkable in the palm of the hand and sole of the foot.

Besides the three or four coats of the tubulus already described, the sudoriparous gland is inclosed in a delicate network of capillary vessels, and is imbedded in cellular and adipose tissue. It is apparently unprovided with nerves.

According to Krause, the sudoriparous glands in the axilla are so numerous as to form almost a continuous layer beneath the corium; while those of the rest of the body he estimates to number 2,381,248; and their aggregate bulk,

including those of the axilla, to be 39,653 cubic inches. In calculating the length of the sudoriparous tubuli of the whole body, taking the length of the single tubulus at a quarter of an inch, we arrived at the conclusion that the entire length would amount to nearly twenty-eight miles. In pursuing this calculation, we found the number of excretory pores in a square inch of the palm of the hand to be 3,528, and on the heel 2,268.

The development of the sudoriparous tubulus has been observed by Kölliker in the foot of a fœtus of the fifth month, and he concludes that the sudoriparous system is complete at birth. The process is similar to that already described as the mode of development of the hairs; a bud of rete mucosum grows into the corium, pressing before it the limitary membrane; by the sixth month the bud has become an elongated cylinder, and has reached the mid-depth of the derma; and by the end of the seventh month has traversed the entire thickness of the derma, and is curved at the end in preparation for the formation of the coil. While the embryo tubulus is progressing in growth, the central cells become softened and broken up, and are in readiness for excretion, while the cells of the parietes constitute the epithelial lining of the tubulus.

The secretion of the sudoriparous gland is water, holding in suspension protein, fat, pigment, and nitrogen; and in solution, chloride of sodium, hydrochlorate of ammonia, salts of lactic, butyric, carbonic, acetic, and formic acids, phosphate of lime, peroxide of iron; and when the kidneys perform their office imperfectly, urea, uric acid, and urates. It is saltish to the taste, and has an acid reaction.

SEBIPAROUS SYSTEM.—The sebiparous system, destined to provide a fatty secretion for the lubrication of the surface of the skin, is distributed, with a few trifling exceptions, over every part of the body, and especially to the more exposed regions, as the nose; to parts where friction occurs, as the axillæ and pudendum; around the apertures of the

body, as the eyelids and anus ; and the parts provided with hair. It consists of follicles and glands, which are situated in the upper stratum of the corium, in close relation with the hair-follicles. They open for the most part into the hair-follicles ; sometimes they terminate on the surface of the epidermis by a common opening with the follicles of the fine hairs ; and occasionally, in association with the finest hairs, they receive the opening of the hair-follicle.

The smallest sebiparous glands are found in connection with the coarser hairs, and the larger glands with the finer hairs. The hairs of the head are commonly supplied with a pair of racemose glands, measuring between $\frac{1}{60}$ and $\frac{1}{10}$ of a line in diameter. These open into the hair-follicle, one on each side, and near the superficial portion of the corium. The coarser hairs of the beard, axilla, and breast, have a little halo of three to five glands, each measuring from one to three-tenths of a line, opening into the upper part of their follicles ; while around the follicles of the hairs of the pubes, scrotum, and labia majora, they form a rosette of four to eight glands, the glands varying in size from a quarter of a line to a line, and in consequence of their larger size, extending for a greater depth into the corium.

In structure, the sebiparous follicle and gland are composed of the same three coats as the sudoriparous glands and hair-follicles ; namely, an *external fibrous coat*, derived from the corium and continuous with the fibrous coat of the hair-follicle ; a *middle coat*, derived from the limitary layer ; and an *internal coat* or epithelium, which is continuous with the outer root-sheath of the hair-follicle, or with the rete mucosum. The epithelium consists of several layers of nucleated cells, and is thicker in the larger than in the smaller ducts. The vessels of the sebiparous glands are the same as those of the hair-follicles.

The development of the sebiparous follicles and glands is identical with that of the hair-follicles and sudoriparous tubules : it begins by the in-growth of a bud from the rete

mucosum, or from the hair-follicle ; the bud lengthens into a tubule, and then ramifies, so as to constitute either a simple racemose gland, or a compound racemose gland. This process is first perceptible at the fourth or fifth month of foetal life ; it begins in the eyebrows, and extends by degrees to the rest of the body, but is not completed at the time of birth.

The sebaceous secretion is a semi-solid substance, composed of disintegrated cells, fat, albumen, casein, extractive matter, and phosphate of lime.

PHYSIOLOGY OF THE SKIN.

THE skin is a defensive covering to the body, capable of resisting moderate violence by virtue of its toughness and elasticity, and endowed with sensation, which gives notice to the muscular system of the approach of injury, and enables us to avoid it. The sensation of the skin is of two kinds, common and special, *common sensation* being that which exists throughout the general surface, and *special sensation* residing in the hands and in the fingers, and conferring the special sense of touch.

The skin also possesses the singular property of maintaining a proper relation between the fluids of the body and the surrounding atmosphere : in certain conditions of the body and of the atmosphere it *exhales*, and under certain other conditions it *absorbs*. It is therefore an organ of exhalation and absorption, acting under the control of the general vitality of the system.

Another of the functions of the skin is *secretion* : it is a secreting organ of albumen in the production of the epidermis and of the hair ; it secretes, besides, the perspiratory fluid, or sweat, and the sebaceous substance.

To sum its properties, we must regard it as an organ

of resistance of injury ; as an organ of sensation, of the common and of the special kind ; as a supporter of the integrity of the tissues, by virtue of its exhalent and its inhalent powers ; and as a conservator of its own healthy condition, its temperature, and of the purity of the blood, by its secretory function.

The *special sense* of touch which resides in the hands, and especially in the pulpous extremities of the fingers, is provided for by means of a special organization, the tactile papillæ, and possibly also by that curious apparatus of nervous ganglia situated in the subcutaneous tissue, the Pacinian corpuscles. By means of this sense we determine the qualities of surrounding objects ; we are enabled to detect their resistance, their extent, and their variety of surface ; to distinguish between hard and soft, smooth or rough, hot or cold. And the educated sense acquires the extraordinary power of tracing the most minute variations of form or surface ; it enables the blind to read, and in some instances to detect the mysterious tactile differences of colours.

The *common sensation* of the skin presents some interesting phenomena in reference to the sensation of different regions of the body and the appreciation of heat and cold. The most sensitive parts are the pulps of the fingers ; the least, the middle of the internodial portion of the limbs. The experiments of Weber, made with a pair of compasses, have shown that the points applied against the skin do not produce a double impression until they are separated to a certain distance apart ; that on the pulp of the middle finger, the interval of separation of the points must be one-third of a line ; on the palmar surface of the same finger, two lines ; on the cheek, five lines ; forehead, ten lines ; on the middle of the breast, twenty lines ; and on the middle of the forearm and thigh, thirty lines, or upwards of two inches. He also noted, as might have been inferred, that the sensation was always most lively in the direction of the

nerves of the part; for example, vertically on the forehead, and transversely on the cheek and neck.

Other experiments made by Weber, on the power of appreciation of temperature, are also interesting. If the two hands be placed in a basin of warm water, the water will seem warmest to the left hand, although the right hand is the most highly appreciative of the special sense of touch. Again, the sense of heat is shown to be materially influenced by quantity as well as by intensity: a hand plunged in water of a certain temperature may feel it too hot to be borne, while a single finger discovers nothing more than a pleasant warmth. Hence, the hand is a bad medium for testing the heat of a bath: to the finger the water in the bath may seem agreeable, to the hand it communicates the sensation of a proper heat, but to the entire skin it may prove insupportable. These experiments also tend to show that a moderate heat applied to a large surface is likely to produce a more powerful impression upon the nervous system than a greater heat upon a more limited surface.

The sensation of the skin is modified very considerably by its state of health or disease: in a state of aberration from the standard of health, its sensibility may be increased or diminished, or it may be perverted; the more common examples of perverted or morbid sensibility being, heat, cold, itching, tingling, smarting, pricking, shooting, creeping, tickling, burning, scalding, &c. These sensations are referrible to the condition of the nervous system, and are a part of common sensation, while certain other peculiarities of sensation belong to special sense; such as, the sense of tickling in the armpits, on the flanks, and in the soles of the feet; and the erection of the nipples, under the impression of touch.

The *exhaling* property of the skin contributes materially to the general perspiration, and is not distinguishable as a separate source of excreted fluid; it is derived from and through the epidermis, and also from the hair, the

aëriferous cells of the latter being due to the substitution of atmospheric air for organic fluid.

The *absorbent* property of the skin is one of the means by which the circle of change is maintained in the economy; and in this respect, the only difference between the inorganic and the organic mass is, that in the former the absorption and the exhalation are governed by physical laws only; whereas, in the organic body, although governed also by physical laws, those laws are controlled and directed by the higher power of vitality. The skin is most favourably organized and disposed for the exercise of the phenomena of endosmosis and exosmosis,—a moist membrane interposed between a mass of fluids within and an atmosphere of fluids without, some gaseous and some aqueous. There can be no doubt that the skin imbibes largely of the oxygen with which it comes in contact by its surface, and that the chief of the advantages of ablution and bathing arise from this property; moreover, in a morbid state of the skin, one of the principal of the agents of evil against which we have specially to guard, is the life-giving, but potent and stimulant, oxygen.

The absorbent property of the skin is conspicuously shown when the body has been deprived of its fluids by excessive perspiration. One of our friends, an observant man, noticed that after taking a hot-air bath, he lost a pound in weight; but that in two hours he had regained that pound of weight, although in the mean time he had neither eaten nor drunk. This pound of moisture lost was clearly replaced by the atmosphere, partly no doubt through the agency of the lungs, but in a measure also through the skin.

When the body is immersed for awhile in water of a certain temperature, say 82° of Fahrenheit, and a few degrees below that point, it increases in weight by the absorption of fluid, and under certain circumstances the proofs of absorption are obtained through the aid of

chemical means. A man who had bathed in a weak solution of the ferrocyanide of potassium, showed the presence of that salt in his urine ; and alkaline urine has been detected in those who have bathed in the waters of Vichy. Colouring matters also have been discovered in the urine of persons who have been for a long time immersed in water containing such substances ; and Fourcault kept birds in water, the head being free, until they vomited water from the stomach.

When, instead of the moderate temperature already indicated, the temperature of the bath corresponds with or is a little over that of the body, an opposite action to that of absorption takes place, namely exhalation, and the body loses in weight. These experiments have also shown that in the lower temperature—that which conduces to absorption—the nervous system is tranquillized, the action of the heart is subdued, and a sedative effect is produced ; but that in the opposite circumstances—namely those that conduce to exhalation—the nervous system is excited, the heart's pulsations are more frequent than natural, and the condition of the system in general is one of irritation.

The power of absorption possessed by the skin has been turned to use in various ways : emaciated and exhausted persons incapable of taking nourishment by the mouth have been kept alive for awhile by baths of milk and baths of broth ; medicines also have been exhibited in this way. Certain medicinal substances, such as hellebore, will act upon the system when kept in contact with the skin by means of a poultice ; but, generally, in pursuing the *iatraleptic method*, or method of introducing medicinal substances into the blood through the agency of the skin, we have recourse to friction. The old practice of mercurial inunction was founded on this property of the skin ; and croton oil and preparations of strychnia will produce their characteristic effects upon the system when applied in a similar manner.

These experiments make us aware of the importance of

the epidermis in resisting the admission of foreign substances into the system; our experiment fails on those parts of the body where the epidermis is thick, and we consequently select a spot where the epidermis is known to be thin; for example, the flexures of the limbs, and particularly the armpits and groins. The substances to be "rubbed in" must be in suspension or solution in water or fat; and the frictions must be continued for a considerable time, and repeated frequently. The epidermis is most favourable for the imbibition of these substances when softened in its tissue by saturation with fluid.

When the *endermic method* of administration of medicines is a matter of importance, the epidermis must be removed as by a blister, and the medicinal substance sprinkled on the denuded derma. Certain substances will act on the system when presented in this manner almost as quickly as they do on being taken into the stomach; and there are diseases, such as hydrophobia, wherein this method becomes one of great value. It is only the more potent medicines that would require to be used in these extreme cases, and they are the best suited for the purpose; for example, strychnine, morphine, belladonna, &c. Our attention is sometimes called to the absorbing power of the skin, in the instance of strangury, produced by the application of a blister; or local paralysis following the use of lead.

Mr. Ceeley records a very important and practical illustration of the absorbing power of the skin, as applied to an organic fluid, the vaccine lymph; and the illustration is equally applicable to the absorption of animal poisons, such as that of syphilis. He says: "I have often succeeded in procuring vaccine vesicles without puncture, on the skins of children especially and young persons, by keeping lymph in contact with the skin, and excluding it from the air by a coating of blood. Active lymph blended with blood, casually trickling down the arm and drying in the most dependent part, will often give rise to a

vesicle." In this case the coating of blood acts in a similar manner to oiled silk in a water dressing ; it confines the exhalation of the part ; the exhaled fluid dissolves the vaccine lymph, and at the same time softens the epidermis to a degree the most favourable for the endosmosis that subsequently takes place.

The *secretions* of the skin are the sebaceous matter and the sweat. The *sebaceous secretion* is produced on all parts of the body, with the exception of the palm of the hands and sole of the feet. It is an oily emulsion, elaborated by the cells of the epithelium of its glandular apparatus, and distributed very largely upon the surface of the epidermis. It preserves the normal moisture of the epidermis ; acts as a varnish of protection to parts of the body that are exposed to the atmosphere, to friction, or to the irritation of fluids, and gives brightness and beauty to the hairy vesture of man. The uses of the sebaceous matter might be best illustrated by a view of the consequences of its absence : the epidermis would become dry, parched, and broken up into scales ; it would break with the movements of the body, and a state of disease be quickly established. In temperate climates the skin produces secretion sufficient for all the purposes required ; but in extremes of climate, whether of the north or of the south, the natives are constrained to have recourse to an artificial substitute for sebaceous matter ; the former to defend them from the cold, the latter from the burning heat.

The situations in which sebaceous matter is poured out upon the skin in greatest abundance are—the head, to co-operate with and contribute to the uses of the hair ; the face, and especially the nose, to provide for the constant exposure of those parts to the severities of climate ; the armpits and perineum, to assist in the defence of the skin against friction and the accumulations of fluid ; and around the apertures of the body, for protection against the contact of fluid secretions.

The sebaceous secretion is an oleaginous emulsion, consisting of water, stearine, oil-globules, pigment-granules, epithelial cells, and saline principles. It is variously modified in different parts of the body ; in some, as in the ear-tubes, constituting the *cerumen* or *ear-wax*, and very remarkable for its brownish-red colour and bitter taste ; in others, as in the perineum, being distinguished by a peculiar odour, due to butyric acid. Simon states of the cerumen of the ears, that it is "an emulsive compound, which contains a soft fat, albumen, a peculiar extractive bitter matter, epithelial scales, lactate of lime, and an alkaline lactate, but no chlorides, and no phosphates soluble in water." And Esenbeck gives the following formula of chemical composition of the sebaceous substance :—

Fat	24·2
Osmazome, with traces of oil	12·6
Watery Extractive (salivary matter).. ..	11·6
Albumen and Casein	24·2
Carbonate of Lime	2·1
Phosphate of Lime	20·0
Carbonate of Magnesia	1·6
Acetate and Muriate of Soda, and Loss ..	3·7
	<hr/>
	100·0

The *perspiratory secretion* consists of the product of the sudoriparous glands, the sweat, together with the exhalation from the follicles and from the general surface of the skin. This secretion is undergoing constant evaporation from the cutaneous surface, and in a tranquil state of the body is commonly inappreciable to the eye : hence the term *insensible perspiration* ; while in an active condition of the body, it is seen oozing from the pores, bedewing the surface, and sometimes running down the skin in little rills : this is the *sensible perspiration*. The quantity of the perspiratory fluid has been variously estimated by different observers. Lavoisier and Seguin state the mean quantity in twenty-four

hours to be 33 ounces, while experiments having reference to forced perspiration have shown that the weight of the body may be reduced two, three, or four pounds in the course of an hour.

The terms *insensible* and *sensible* perspiration have no other signification than that of indicating, that, although invisible, transpiration and exhalation are constantly taking place. The same amount of perspiration may at one moment be sensible, and at another insensible, by a mere alteration of the physical condition of the surrounding atmosphere. For example, in a dry and still air, perspiration may be raised by exercise, to the point of being visible, while in a current of air, the temperature and other conditions being the same, it would be evaporated so quickly as to be invisible, and a moment after, if the experimenter were to be surrounded by an atmosphere saturated with moisture, there would be an end to evaporation, and the perspiration would roll down the body in big drops and rills. In estimating the quantity and importance of the perspiration in the animal economy, these modifying conditions must be borne in mind; and it must be remembered also, that perspiration may be excited by heat, by exercise, and by certain medicines, which are thence termed diaphoretics.

Amongst others of the modifiers of perspiration is the nervous system, as is shown in the arrest of that secretion during the hot stage of fever, and its sudden outburst in syncope, and under the influence of emotions of a depressing kind, such as fear and anxiety. Perspiration is most active during digestion, and least so immediately after a meal.

The harmony of the functions of the body is illustrated in the sympathy which the secretion of perspiration maintains with other secreting organs of the system; for example, the lungs and the kidneys. In the summer time, the skin acts freely by way of perspiration, and the quantity of the urine is diminished; and in the winter these conditions are

reversed; the urine is then the most abundant, the skin the least. If on a cold evening we quit a warm apartment, the perspiration immediately receives a check, and the kidneys are with equal suddenness prompted to action; and this is especially the case if the renal organs have been previously excited by alcoholic stimulants. Dr. Lining, of South Carolina, has shown by experiment, that the quantity of perspiration is more than doubled in July as compared with February, while the amount of the urine is exactly the reverse. In certain diseases also, this sympathetic equilibrium of the secretions is strikingly manifested; for example, in the dry skin of the diabetic patient, and in the profuse night-sweats of phthisis pulmonalis.

The perspiratory secretion is an important regulator of the temperature of the body, as we see illustrated in the power which we possess of enduring a high temperature. We have ourselves remained for ten minutes in a temperature of 250° ; Blagden supported a temperature of 260° for nearly the same period; the oven of Sir Francis Chantrey, used for drying his moulds, and heated to a temperature of 350° , was constantly entered by his workmen; and so also is the oven of Mr. Magnus, employed for enamelling on slate, and kept at a temperature of over 400° . Mr. Magnus once remarked to us, that the accidental spilling of a tumbler of water in this oven would immediately produce scalding. Another series of experiments has shown that in these very high temperatures, the heat of the body is very little raised above its normal standard; the bulb of a thermometer held in the mouth of a man who had remained in a temperature of 120° for a quarter of an hour, was raised only to 105° ; and when animals were destroyed by a heated temperature, their internal heat never exceeded the natural standard more than twelve or fourteen degrees.

But this power of preserving a standard temperature of the body is lost as soon as the above conditions are reversed. A gentleman who visited the natural hot-vapour baths of

Nero, near Pozzuoli, which in highest temperature do not exceed 122° , makes the following report of his experiment :— To reach the source, he had to pass along a narrow winding passage, seven feet in height, three in width, and one hundred and twenty yards in length. Just within the mouth of the passage, the temperature was 104° in the upper strata of the atmosphere, and 91° near the ground ; further on, the air was filled with dense vapour, of 118° above, and 111° below ; and over the bath it was 122° ; the heat of the spring being 185° . After proceeding one-third the length of the passage, he began to feel a sense of oppression, and his pulse rose from seventy to eighty beats in the minute. Farther on, the oppression increased : his breathing became rapid and panting ; he was constrained to stoop frequently for a chestful of cooler air ; he sweated profusely, his head throbbed, and his pulse was 120. Continuing onward, the sensations of suffocation became insupportable ; he felt as though his head would burst ; his pulse became too rapid to count ; he was exhausted, and becoming unconscious ; and it demanded all his remaining strength and energy to stagger back into the open air. He was faint, and experienced a fulness of head, relieved by hæmorrhage from the nose, and remained uncomfortable during the rest of the day, his pulse continuing to be one hundred in the minute, and his sensations of uneasiness considerable.

So much importance is attached by some pathologists to the free transpiration of the skin, that Fourcault believed its suppression to be the cause of certain chronic diseases, and particularly of scrofula and consumption ; the latter disease, according to him, being the consequence of a cold and damp atmosphere, combined with want of proper exercise. To put his theory to the test of experiment, he covered the coats of animals with an impermeable varnish, and in a short time they died ; indeed, so quickly, that, as he avers, they lived for a shorter period than animals altogether

deprived of their skin. Their mucous membranes, their serous membranes, and the nervous centres, were all found to be excessively congested after death. In a horse, the vessels of the Schneiderian membrane were loaded, and relieved themselves by a profuse discharge. Sheep suffered in a similar manner, and had also coryza; while dogs were seized with inflammation of the bowels, and congestion and enlargement of the liver. The animals suffered very early from oppression and difficulty of breathing, and died of asphyxia, accompanied with convulsions. In an animal varnished on one side only, the cutaneous capillaries of that side were found gorged with dark-coloured blood, while on the opposite side the blood was scarlet, and scanty. In the majority, the veins near the heart were found distended with black soft coagula, and in some there were coagula in the lungs. He illustrates these phenomena by reference to the child whose skin was gilded to give brilliancy to the fête accompanying the election of Pope Leo the Tenth: the child was to represent the golden age; but its death was the result of the celebration. Fourcault also produced albuminaria in dogs by similar means; the first change in the urine was a diminution of its acid reaction; then albumen appeared, and the fluid became alkaline.

Becquerel and Breschet conceived that if they could arrest transpiration by the skin, after the manner of Fourcault, they would produce internal fever; but the very opposite phenomena followed their experiments. The temperature of the deep muscles was reduced, in the course of half an hour after the application of the varnish, from 100° to 89° ; in another half-hour to 76° ; and in another half-hour, the index of their thermo-electric apparatus denoted a fall in the temperature to within three degrees of the surrounding atmosphere; the latter being 63° . In one hour and a half, the temperature of the body had fallen thirty-four degrees, and the animal died.

That the perspiratory secretion is not only a defence to the economy, but also a purifier of the blood, is shown by its chemical composition. Its constituents are, water, nitrogen, animal extract, fat; carbonic acid, with carbonates of soda and lime; lactic acid, with lactate of ammonia; acetic acid, with acetate of soda; butyric acid, chloride of sodium, hydrochlorate of ammonia, phosphate of soda and lime, sulphate of soda, salts of potash, and peroxide of iron. Dr. P. A. Favre sums up his chemical researches on the composition of sweat as follows:—Its solid components, with the exception of a trace, are soluble in water; its predominant salt is chloride of sodium; alkaline sulphates exist in it in very small quantity; alkaline and earthy phosphates are barely discoverable; lactic acid is present in the form of lactates; it possesses a peculiar nitrogenous acid, *sudoric acid*, resembling uric acid in its chemical nature; sudoric acid is combined with alkalis, but uric acid never occurs; urea is present; there is but little oily or albuminous matter; the latter is in combination with the alkalis; the potash is chiefly combined with the organic acids, the soda with the mineral acids; at the beginning of perspiration, the organic salts exceed the mineral salts, but after a time the proportions are reversed.

The peculiar odour of the sweat is due to its organic constituents, and partly to the presence of ammonia; and its acid reaction to the acetic, the lactic, and the sudoric acids. Its gaseous constituents are carbonic acid and nitrogen. The carbonic acid is derived chiefly from the food, and is exhaled in largest quantity after a meal or muscular exercise. Dalton estimates the quantity of carbon eliminated by the skin, and irrespective of varieties of food, at one-twentieth of the entire weight of the cutaneous transpiration. The nitrogen of the sweat enters the body with the food, or by absorption through the skin, in the shape of atmospheric air;

during digestion, the atmospheric air undergoes decomposition, the oxygen combines with the carbon of the food to constitute carbonic acid, and the nitrogen is set free. The quantity of nitrogen is consequently the greatest during digestion, and is greater in herbivorous animals, in whom the process of digestion lasts longest, than it is in the carnivora.

CHAPTER II.

PATHOLOGY OF THE SKIN, AND CLASSIFICATION OF ITS DISEASES.

THE SKIN in disease presents characters which are the direct opposites of those which distinguish its healthy state. There are characters which are apparent to the eye of the observer, and other characters which can be only fully appreciated by the sufferer.

The characters which are obvious to the eye—the *visual* characters—are, 1. redness ; 2. unevenness or asperity from the presence of pimples ; 3. asperity from the presence of vesicles ; 4. asperity from the presence of large vesicles, termed bullæ ; 5. asperity from the presence of purulent vesicles or pustules ; 6. asperity from a scale of altered epidermis ; 7. asperity from enlargement and prominence of the skin, constituting tubercles ; and 8. discoloration or stain.

The characters which appertain to the sensations of the patient are pain in a variety of forms ; for example, itching, pricking, stinging, burning, creeping, shooting, gnawing, and aching ; together with flushes, chills, dryness, and stiffness.

The visual characters are the pathological signs or appearances by which the disease is distinguished. They are eight in number ; and upon these signs the classification of Willan is founded. The classification of Willan is, therefore, a pathological classification, and its orders or groups, eight in number, are as follows :—1. Exanthemata ;

2. Papulæ ; 3. Vesiculæ ; 4. Bullæ ; 5. Pustulæ ; 6. Squamæ ; 7. Tubercula ; 8. Maculæ.

1. EXANTHEMATA, derived from *ἐξανθειν*, to burst forth or effloresce, or throw out blossoms like flowers, is the term applied to a vascular congestion or redness of the skin, which is one while uniform and limited in extent, as occurs in erythema, erysipelas, and urticaria; and another while blotchy and dispersed over the whole body, as in roseola. Willan included in this order scarlatina and rubeola, which harmonize better with the idea of bursting into blossom, like flowers, than do erythema, erysipelas, and urticaria, and may be regarded as the true illustration of exanthemata; while the existing group would be better represented by the term erythemata, taking erythema as its type. Scarlatina and rubeola differ from the erythemata in many important respects, the chief of which is their contagious nature. We have, therefore, thought it well to make them a group by themselves, under the name of zymotic or eruptive fevers. Another affection, namely, purpura, admitted by Willan into this group, has also been rejected; the redness of purpura being due, not to congestion of vessels, but to effusion of blood into the tissues of the skin.

As redness is the type of the order Exanthemata, it will be interesting to note the varieties of redness which may be present in cutaneous diseases. The redness may be scarlet, like that of arterial blood, the colour which has given a name to scarlatina. It may be crimson or raspberry-coloured, probably from a slower circulation, and the consequent intrusion of the venous change into the blood, as in rubeola; or it may be purplish or roseate, also from tardiness of circulation, or the congestion of a different set of vessels, as in roseola.

It will occur to some of my readers that in one of the eruptions of this group, namely, urticaria, there is a development of white and anæmic tubercles and wheals in

the midst of the blotches of red. This is produced by spasm of the muscular structure of the corium, which not only causes prominence of the skin, but also presses out the blood from its vessels and renders it anæmic. As the spasm subsides, the prominence of the skin ceases, and the natural colour returns. In some instances the spasm is intermittent, and there is the appearance of a kind of ebb and flow of colour in the wheals, as we have several times had occasion to observe.

2. PAPULÆ.—The type of this order is a papula or pimple, which is defined by Willan to be “a very small acuminate elevation with an inflamed base, very seldom containing a fluid or suppurating, and commonly terminating in scurf.” A careful examination of this pathological sign and a better knowledge of the anatomy of the skin shows us, however, that the pimple is the elevation of one of the follicles of the skin, from congestion of its vessels and infiltration of the tissues immediately around it. The papula, therefore, shows a deeper congestion than that of erythema, and may exist independently of the superficial congestion, or in conjunction with it. Papulæ are hard to the touch, and are commonly accompanied with considerable and severe itching; the severity of the pruritus being, possibly, the result of irritation of a different set of nerves to those that are involved in the more superficial congestion of the erythemata.

The diseases included in the order Papulæ are,—Lichen, Prurigo, and Strophulus.

3. VESICULÆ.—A vesicula, according to Willan, is “a small orbicular elevation of the cuticle, containing lymph, which is sometimes clear and colourless, but often opaque, and whitish or pearl-coloured. It is succeeded either by scurf or by a laminated scab.”

Anatomy teaches us that the precise situation of the vesicle is, like that of the papule, the aperture of a follicle. Sometimes the cuticle is raised evenly from the whole

circumference of the pore, and the vesicle is regular in its form ; sometimes it occupies one lip of the pore, or more than one vesicle is developed around the circumference of the pore ; and sometimes, where several vesicles are clustered together, the compound vesicle is found to possess a multilocular structure. It may be remarked that Willan's standard of observation in the definition of a vesicle, was the vesicle which is raised on the back of the hand after exposure to the sun. In this situation the vesicle is really orbicular, as he describes ; but in some other positions, as between the fingers, it is conical in figure ; while in certain others, as on the trunk of the body, although retaining the orbicular form, it is commonly larger than elsewhere ; as, for example, the vesicle of miliaria. On the palm of the hands, and palmar surface of the fingers, the cuticle resists the formation of distinct vesicles, and is raised in laminæ of some extent, through which the bead-like globules of effused lymph are distinctly perceptible. This is another example of the multilocular vesicle.

A vesicle would seem to be the consequence of a similar pathological process to that which gives origin to the pimple. There is congestion of the vessels of the follicle in both, while in one the serous fluid or lymph which results from the congestion is retained in the tissues, and produces a pimple, and in the other is poured out upon the surface of the corium, and, lifting the cuticle, occasions a vesicle. And the difference seems due rather to the constitution of the patient than to the nature of the cause which excites the eruption. Two persons exercising in the sun, and exposed to the sun's rays, may the next morning find the back of the hands presenting a very different form of eruption, although the cause and the conditions were precisely the same. In one, possessing a bilious temperament, the eruption may be distinctly papular, in a word, *lichen solaris* ; while in the other, of lymphatic temperament, the eruption may be vesicular,—*eczema solare* ; nor would it be

unlikely that in a third person, say of nervous temperament, there might be neither papulæ nor vesiculæ, but in lieu of these, an *erythema solare*.

The albuminous fluid which is poured out upon the skin under the influence of congestion or inflammation, is generally transparent at its first effusion, but in a short time becomes milky and opaque. This change is very conspicuous in the vesicular eruption called miliaria: in its transparent state, from the reflection of the colour of the inflamed base, the vesicles have a red appearance, and the eruption is termed miliaria rubra; while at a later stage, when the vesicles have become milky, it is called miliaria alba.

In his order Vesiculæ, Willan assembled seven different diseases: five of these we have thought proper to reject, and have retained only eczema and miliaria. The rejected eruptions are varicella and vaccinia, which are forms of variola; herpes, from the largeness of its vesicles, we have classed with bullæ; rupia we have transferred to syphilitic eruptions, to which it properly belongs; while aptha is an affection of the mucous membrane, and not at all of the external skin.

In his definition of papula, as also of vesicula, Willan notes the termination of the pathological process in scurf, or in a laminated scab. This, it may be explained, is the natural termination of a congestion or inflammation of the skin, which suspends for a while the formation of the epidermis, or which destroys the life of the epidermis, by separating it from the living tissue on which it is naturally imbedded. In a short while the separated and loosened cuticle breaks away from its attachment, and is thrown off, either as a fine desquamation or scurf, or as a coarser desquamation, namely, a laminated scab.

4. BULLÆ are large hemispherical vesicles and bladders thrown up upon the skin on an erythematous base. The vesicles rarely exceed the size of a small currant, and

constitute the eruption termed *Herpes*; while the bladders or blebs are termed *Pemphigus*.

The examples of bullæ, according to Willan, are Erysipelas, Pemphigus, and Pompholyx. Erysipelas we have restored to the order Exanthemata, its vesicles being an uncertain and accidental character. Pemphigus and pompholyx are the same disease, and the terms have nearly the same meaning; while herpes we have taken from Vesiculæ, and joined with pemphigus in the present group.

The lymph which is effused into the vesicle of herpes is transparent at first, but rapidly becomes opalescent, and as the vesicle reaches maturity, yellowish or purplish: in the latter state it dries up into a hard scab of a deep amber-colour or black, and remains adherent to the skin for several days. The lymph of pemphigus is more like the serum of an ordinary blister, which the entire eruption very much resembles. The effused fluid passes through the usual stages of transparency, opalescence, and amber-tinted or purplish coloration, according to the predominance of the biliary or of the hæmic pigmentary principle: it is sometimes dispersed by rupture of the bleb, and sometimes dries up by evaporation, and leaves a thin cuticular scab, which is subsequently thrown off by desquamation.

5. PUSTULÆ.—When, instead of lymph or serum, the vesicle contains pus, the pathological lesion is termed a pustule. Sometimes the contents of the vesicle are lymphatic at first, and afterwards become opaque and puriform; this is a *sero-pustule*; but when more inflammation is present, they are pustular from the beginning. The transition of a vesicle into a pustule may therefore be taken as a sign of augmentation of inflammation; while the original development of the eruption as a pustule must be regarded as indicative of a higher degree of inflammation, a lower vitality of the part, or a constitutional proneness to the production of pus; in other words, a pyogenic diathesis.

It was customary for the older writers to distinguish

four kinds of pustule ; namely, *Psydracium*, *Phlyzadium*, *Achor*, and *Favus*. *Psydracium* is a small pustule, occurring in clusters, frequently confluent, containing lymph at first, and subsequently becoming purulent. *Phlyzadium* is a larger pustule with a hard and inflamed base. *Achór* is a small pustule occurring on the scalp at the apertures of the hair-follicles, and terminating in scurf. *Favus* also is developed around the mouth of a hair-follicle ; but the matter which it contains is distinct from pus, and is termed favous substance. We, therefore, at the present time, recognize only three forms of pustules ; namely, psydracia, phlyzacia, and achóres.

The diseases included in the order *Pustulæ* are *Impetigo*, which is an eruption of psydracious pustules, and *Ecthyma*, an outbreak of pustules of the phlyzacious kind. Besides these, however, Willan admitted into this order three other diseases ; namely, *porrigo*, *variola*, and *scabies* ; all of which we have thought proper to reject ; *porrigo*, because it is a misnomer and without identification ; *variola*, because it belongs to the zymotic group of eruptive fevers ; and *scabies*, because it is an *eczema*.

6. *SQUAMÆ*.—A *squama* or scale, according to the definition of Willan, is “a lamina of morbid cuticle, hard, thickened, whitish, and opaque ;” and the diseases falling within this definition are, *Lepra*, or, more properly, *Alphos* ; *Psoriasis*, *Pityriasis*, and *Ichthyosis*. In reality, the only true squamous affection is *alphos* ; *psoriasis* being merely a desquamating stage or form of chronic *eczema* ; *pityriasis*, a furfuraceous variety of the same affection ; and *ichthyosis*, a state of defective nutrition of the skin, in which the epidermis being imperfectly developed, breaks up over the greater part of the surface of the body into scale-like plates, corresponding with the lines of motion of the skin.

The scale of *alphos* (*lepra vulgaris*, Willan) is circular in form and surmounts a slight elevation of the skin, of a reddish colour, and hard and dense to the touch. It varies

in size, in correspondence with the elevation upon which it is formed, from one or two lines to as many inches in diameter. It is white, porous, glistening, laminated, and imbricated; and when, instead of occupying an isolated position, the disease extends over a large surface, such as an entire limb, these characters are still appreciable, although the general form of the scale is disturbed. Upon close inspection, it is evident that the confluent or compound scale is made up of a number of small scales, each surmounting a separate little mound or tubercle.

It is important, to the full understanding of what is meant by the pathological sign termed a "scale," that this description should be borne in mind, in order to contrast it with the mere exfoliation of the ordinary, albeit morbid cuticle, which occurs in chronic eczema, and is termed psoriasis and pityriasis; and in ichthyosis. The desquamation of psoriasis and pityriasis is not unfrequently furfuraceous, or branny (*furfur*, bran); and sometimes farinaceous, or mealy.

7. TUBERCULA.—A tubercle, according to Willan, is "a hard, superficial tumour, circumscribed and permanent, or proceeding very slowly to suppuration;" and he assembles under this head every disease of the skin possessing prominence and solidity, not already disposed of in his previous orders. Tubercula is consequently a kind of *hochepot* for the convenient packing away of a little catalogue of ailments that otherwise might be difficult to arrange; beginning with a boil, picking up acne, lupus, and elephantiasis in its way, and ending with a humble wart. The complete list is as follows:—Phyma, Acne, Sycosis, Molluscum, Lupus, Vitiligo, Elephantiasis, Frambœsia, and Verruca. The student will see at once the necessity of grouping these diseases differently, and transferring the majority of them to other heads of classification.

8. MACULÆ.—Macula, a mark or stain, or spot, is a "permanent discoloration of some portion of the skin, often

with a change of its texture ;” and included under this head are three divisions: Ephélis, Spilus, and Nævus. Ephélis, or sun-stain, represents the family of discolorations of the skin, or dyschromatodermata; the commonest illustration of these being freckles. Spilus and nævus are the so-called mother’s-marks; the spili being the marks or moles characterized by pigmentary discoloration; and the nævi, those which are due to an abnormal development of the vessels of the skin, whether of its arterial or of its venous structure.

As a rude classification of great simplicity, none can be better suited for the early training of the student than the system of Willan. Its fundamental principles are few and distinct, easily carried in the mind, easily recognized by the bedside, and easy of application under every circumstance. The invention of this classification by Plenck, and its subsequent simplification by Willan, mark an important era in the progress of cutaneous medicine, and have cleared the way for a more precise and more practical arrangement. A practical and unobjectionable classification has engaged the thoughts of almost every dermatopathologist who has devoted his attention to diseases of the skin, but hitherto with little success; and in the absence of a more perfect system, we propose to adopt a classification that at least has the merit of being framed out of a practical material, and embraces every cutaneous disease at present known.

If we reject pathological lesions as the foundation of a classification, we may be led to ask, Which is the *commonest* disease of the skin? The determination of this question naturally establishes a point of commencement, and a standard of reference, while the remaining diseases may possibly fall into their proper places in a systematic arrangement, naturally, and as a matter of course. Thus, if it be shown that the commonest disease of the skin is Eczema, we may take the leading characters of eczema and

establish a group of *eczematous affections*. Now, as eczema is a disease which is not limited to a part, or to a single tissue of the skin, but is general in its invasion and capable of attacking every region of the cutaneous surface, we may follow up eczema with three other groups, possessing a similar generality of character, and, like the eczematous group, each represented by a substantive disease: for example, Erythema, which we will take as the type of Erythematous affections; Pemphigus, which we will take as the type of Bullous affections; and Furunculus, which we will take as the type of Furuncular affections. After these general affections, we may consider next, the affections of the nerves, the vessels, and the relation subsisting between the vessels and their contained blood: these will furnish us with three other groups; namely, Nervous affections, Vascular affections, and Hæmic affections. After the tissues in general, the nerves, the vessels, and the blood, we may take disorders of development, nutrition, and growth; and these will constitute two further groups; namely, Developmental and nutritive affections, and Hypertrophic and Atrophic affections. We may next turn from disorders common to the skin to what may be considered as specific affections; for example, the action on the system and on the skin of zymotic poisons,—Zymotic affections; the peculiar disease Alphos may be taken as the type of Alphous affections; Struma will typify Strumous affections; Syphilis, Syphilitic affections; Cancer, Carcinomatous affections; and Elephantiasis, Leprous affections. Having disposed of specific affections, there remain the affections of the special apparatus of the skin; namely, the hair and hair-follicles; the sebiparous apparatus; the chromatogenous apparatus; the sudoriparous apparatus; and the nails; lastly, we may add a group of Traumatic affections, and one of Phytodermic affections. This is the classification which we shall venture to take as the basis of the present work. We have called it a clinical classification, as arising out of the analysis of a large

number of cases of disease, and we now present it in a tabular form, as follows :—

CLINICAL CLASSIFICATION.

- | | |
|-------------------------------------------|-----------------------------------------------|
| 1. Eczematous affections | 13. Syphilitic affections |
| 2. Erythematous affections | 14. Carcinomatous affections |
| 3. Bullous affections | 15. Leprous affections |
| 4. Furuncular affections | 16. Affections of the hair and hair-follicles |
| 5. Nervous affections | 17. Affections of the sebiparous apparatus |
| 6. Vascular affections | 18. Affections of the chromogenous apparatus |
| 7. Hæmodyscrasic affections | 19. Affections of the sudoriparous apparatus |
| 8. Developmental and nutritive affections | 20. Affections of the nails |
| 9. Hypertrophic and Atrophic affections | 21. Traumatic affections |
| 10. Zymotic affections | 22. Phytodermic affections |
| 11. Alphous affections | |
| 12. Strumous affections | |

1. **ECZEMATOUS AFFECTIONS.**—Eczema, the commonest of the eruptions of the skin, is the type of this group ; and the diseases embraced under this head are Eczema, Psoriasis, Pityriasis, Lichen, Impetigo, Scabies, and Gutta rosacea.

2. **ERYTHEMATOUS AFFECTIONS.**—Erythema is the type of erythematous affections, and the diseases assembled in this group are Erythema, Urticaria, Erysipelas, and Roseola.

3. **BULLOUS AFFECTIONS,** having Pemphigus for their type, include Herpes, Miliaria, and Pemphigus.

4. **FURUNCULAR AFFECTIONS.**—Furunculus is the type of furuncular affections, and its examples, Ecthyma, Furunculus, Hordeolum, and Anthrax.

5. **NERVOUS AFFECTIONS** of the skin are typified by an irritable condition of the cutaneous nerves, giving rise commonly to itching, but sometimes to other forms of pain. The affections belonging to this group are Hyperæsthesia, Anæsthesia, Pruritus, and Prurigo.

6. **VASCULAR AFFECTIONS** are represented by alterations

in the distribution and size of the vessels of the skin ; the type and principal illustration of these affections being *Nævus vasculosus*, to which is added *Hypertrophia venarum*.

7. *HÆMODYSCRASIC AFFECTIONS*, or affections in which the relations of the blood to its vessels are abnormally altered, are represented by *Purpura*.

8. *DEVELOPMENTAL AND NUTRITIVE AFFECTIONS* are typified by *Xeroderma*, *Ichthyosis*, and *Cachexia cutis*.

9. *HYPERTROPHIC AND ATROPHIC AFFECTIONS* are exemplified by *Nævus hypertrophicus*, *Ecphyma*, *Kelis*, *Bucnemia tropica*, and *Atrophia cutis*.

10. *ZYMOTIC AFFECTIONS* are the diseases or fevers originating in a poisonous ferment, and attended with exanthema of the skin ; in other words, the eruptive fevers. They are five in number :—*Rubeola*, *Scarlatina*, *Variola*, *Varicella*, and *Vaccinia*.

11. *ALPHOUS AFFECTIONS*.—*Alphos*, the type of the *Squamæ* of Willan, stands alone in this group ; heretofore misnamed *lepra*, on account of its roughness, and *psoriasis*, on account of some resemblance to the squamous stage of *eczema* ; it now resumes its proper position as an idiopathic and substantive disease.

12. *STRUMOUS AFFECTIONS* include diseases of the skin which have their origin in *struma* or *scrofula*. The examples of these affections are *Scrofuloderma* and *Lupus*.

13. *SYPHILITIC AFFECTIONS* embrace all the varieties of syphilis developed on the skin,—the *syphilodermata*, whether they present themselves as exanthemata, *papulæ*, *pustulæ*, *bullæ*, *tubercula*, or *ulcera*. *Rupia* is a bullous *syphiloderma*.

14. *CARCINOMATOUS AFFECTIONS* include the group of cancers of the skin.

15. *LEPROUS AFFECTIONS* embrace the consideration of the true or ancient *lepra*, the *elephantiasis* of the Greeks, and all the varieties appertaining to this grave disease. The

principal forms are included under the two following heads :
Lepra and *Vitiligo*.

16. AFFECTIONS OF THE HAIR AND HAIR-FOLLICLES.—The examples of disease assembled under this group are *Alopecia*, *Area*, *Canities*, *Hirsuties*, *Trichiasis*, *Trichosis*, *Favus*, *Kérion*, *Sycosis*, *Plica*, *Erythema folliculorum*, *Stearrhœa*, and *Narcosis folliculorum*.

17. AFFECTIONS OF THE SEBIPAROUS APPARATUS.—The diseases belonging to this group are *Stearrhœa*, *Ichthyosis sebacea*, *Comedones*, *Accumulationes sebaceæ*, *Cornua*, *Tubercula miliaria*, *Tumores serosi*, *Tumores sebacei*, and *Acne*.

18. AFFECTIONS OF THE CHROMATOGENOUS APPARATUS.—Under this head are grouped the *Dyschromatodermata* ; for example, *Lentigo*, *Ephélis*, *Melasma*, *Leucosma*, and *Chloasma*.

19. AFFECTIONS OF THE SUDORIPAROUS APPARATUS are represented by *Idrosis*, *Anidrosis*, *Osmidrosis*, *Chromidrosis*, and *Hæmidrosis*.

20. AFFECTIONS OF THE NAILS have their representatives in *Degeneratio unguium* and *Onychia*.

21. TRAUMATIC AFFECTIONS include the injuries resulting from the bites and stings of insects, and their habitation in the skin ; together with other accidental injuries of the organ.

22. PHYTODERMIC AFFECTIONS. — The dermatophytic diseases are founded on a peculiar metamorphosis of the elements of the epidermic cells, by which the nascent cell is converted into a structure closely resembling a vegetable organism, and possessing the attributes of the mucedines. They occur chiefly in association with hair-follicles, and with one exception are borrowed from affections of the hair and hair-follicles ; the exception being *chloasma*, which is derived from affections of the chromatogenous apparatus. The diseases constituting this group are, *Trichosis*, *Favus*, *Kérion*, *Sycosis*, and *Chloasma* ; and, according to some dermatopathologists, also *Area*.

We have endeavoured to show that the aims of classification are twofold, namely, in the first place, to lay down a plan by which a knowledge of diagnosis may be most easily acquired ; and, secondly, to arrange a number of diseases according to a method that will facilitate the comprehension of their nature and phenomena, and conduce to their treatment with successful results. The first of these objects is amply fulfilled by the classification of Willan, which is essentially a classification of diagnosis ; and consequently, *par excellence*, an educational classification ; while the second has been attempted by a number of authors, with varied success, under the name of practical or natural classification ; the most recent of these essays being the CLINICAL CLASSIFICATION, which we have just endeavoured to explain.

We discover vestiges of a pathological classification as far back as the 16th century, when we are informed by a French author, Riolan, that some physicians include all diseases of the skin under three heads ; namely, alterations of smoothness, of colour, and of magnitude ; whereas, this arrangement affording no place for disorders of the hair, others prefer to divide them into Pustules, Deformities, and Tubercles ; pustules comprehending all eruptions attended with roughness of the skin, whether pimples, vesicles, pustules, or scales ; deformities, marks of all kinds, morbid colorations, and diseases of the hair ; and tubercles, warts and condylomata. At a later period, namely in 1776, a German author, Plenck, amplified this simple grouping into fourteen classes, which he subdivided into 115 genera. His fourteen classes are as follows :—

PLENCK'S CLASSIFICATION (1776).

Maculæ		Papulæ
Pustulæ		Crustæ
Vesiculæ		Squamæ
Bullæ		Callositates

Excrecentiæ cutaneæ	|	Insecta cutanea
Ulcera cutanea	|	Morbi unguium
Vulnera cutanea	|	Morbi pilorum

Willan's classification, it will be seen, took its origin in that of Plenck, and is, in fact, the arrangement of Plenck curtailed and improved; a selection of eight of his groups, and a rejection of six, although of these six he might very advantageously have retained the three last; namely, *Insecta cutanea*, *Morbi unguium*, and *Morbi pilorum*. Willan's classification was published in 1798, and is as follows:—

WILLAN'S CLASSIFICATION (1798).

ORDER 1.—PAPULÆ.

Strophulus	|	Prurigo
Lichen	|	

2.—SQUAMÆ.

Lepra	|	Pityriasis
Psoriasis	|	Ichthyosis

3.—EXANTHEMATA.

Rubeola	|	Roseola
Scarlatina	|	Purpura
Urticaria	|	Erythema

4.—BULLÆ.

Erysipelas	|	Pompholyx
Pemphigus	|	

5.—PUSTULÆ.

Impetigo	|	Variola
Porrigio	|	Scabies
Ecthyma	|	

6.—VESICULÆ.

Varicella	|	Miliaria *
Vaccinia	|	Eczema
Herpes	|	Aptha
Rupia	|	

7.—TUBERCULA.

Phyma	|	Sycosis
Verruca	|	Lupus
Molluscum	|	Elephantiasis
Vitiligo	|	Frambœsia
Acne	|	

8.—MACULÆ.

Ephelis	|	Spilus, &c.
Nævus	|	

The NATURAL CLASSIFICATION is founded upon a general view of the *nature* and *cause* of the disease, having for its object the development of a correct principle of treatment; hence it may also be called an *Etiological* and a *Therapeutical* classification. The earliest natural arrangement with which we are acquainted is that of Celsus, who divides diseases into such as should be treated by diet; such as should be treated by medicine; and such as should be treated by surgical means. This is obviously a therapeutical classification; but he further introduces into it a topographical element, and subdivides the diseases to be treated by medicine into a group of general and a group of topical affections.

A natural classification of more recent times is that of Alibert, published in 1810, and remodelled in 1832. Alibert's classification, called the "*Arbre des Dermatoses*," is based on the affinities or analogies which are supposed to exist between certain diseases and to lead to a method of treatment which is identical for each separate group. His groups or families, twelve in number,—the twelve branches the "*tree of the dermatoses*," are as follows:—

ALIBERT'S CLASSIFICATION (1810).

Eczematous	|	Dartrous
Exanthematous	|	Cancerous
Tineous	|	Leprous

Syphilous	|	Hæmatous
Strumous	|	Dyschromatous
Scabieous	|	Heteromorphous.

Devergie, of Paris, in his excellent treatise, arranges cutaneous diseases into groups, in accordance with their amenability to treatment; their resemblance in form; their resemblance in pathological products or accidental conditions, and their foreign origin. His groups are fourteen in number, seven corresponding with the orders of Willan, and the remainder as follows:—

Parasitic affections (vegetable)
 Parasitic affections (animal)
 Scrofulous affections
 Syphilitic affections
 Exotic affections
 Diseases of nails
 Infantile diseases, especially of the hairs.

The most recent author of a natural classification, Hardy, of Paris, revives the views and some of the groups of Alibert; for example, the Dartres (tetter); in other respects his arrangement takes for its groundwork an etiological and therapeutical basis. Of his ten classes, seven are founded on the cause of the disease; for example, two, special poisons,—namely, eruptive fevers and syphilis; three, diathesis,—namely, dartres, scrofula, and cancer; one, parasites; and one, symptomatic of internal disease. The three remaining classes are: one, topical,—namely, local inflammations; one, elementary lesion,—namely, maculæ and deformities; and one, exotic diseases, or diseases of foreign origin. Viewed more in detail, his ten classes are as follows:—

HARDY'S CLASSIFICATION.

Maculæ; deformities	|	Dartres
Local inflammations	|	Scrofulous diseases
Parasitic diseases	|	Syphilitic diseases
Eruptive fevers	|	Cancers
Symptomatic eruptions	|	Exotic diseases

1. **MACULÆ AND DEFORMITIES** ; including alterations of colour, maculæ, red stains, ephélis, vitiligo, lentigo, warts, molluscum, ichthyosis and kelis,—diseases requiring no medical treatment in general ; but in the event of a cure being sought for, to be removed by the knife or by caustics.

2. **LOCAL INFLAMMATIONS** ; independent of any constitutional disturbance ; or, if any constitutional symptoms appear at the outset of the disease, they are limited to feverishness of the slightest and most transient kind. The members of this group are : Erythema, Urticaria, Herpes, Ecthyma, Pemphigus, &c. The treatment required is very simple,—mildly antiphlogistic, local and general.

3. **PARASITIC DISEASES** : purely local, and due to the presence of a parasite, animal or vegetable ; for example, Scabies, Sycosis, Herpes circinatus, and Favus. The treatment is obvious ;—destruction of the parasite.

4. **ERUPTIVE FEVERS** : dependent on a general cause, the admission into the system of a virus, distinct for each variety of disease ; for example, Scarlatina, Rubeola, Variola, &c. The eruption on the skin is preceded and accompanied by symptoms of constitutional disturbance of greater or less intensity. In conducting the treatment, the natural course of the disease is to be respected, and complications only attacked.

5. **SYMPTOMATIC ERUPTIONS** : the eruption is secondary, the treatment must therefore be directed against the primary disease. The diseases belonging to this group are : Herpes labialis, the roseolous spots of typhoid fever, Sudamina, and Purpura.

6. **DARTRES** : eruptions due to a particular state or general disposition of the economy, called diathesis : the members of this group are—Eczema, Psoriasis, Lichen, and Pityriasis. These diseases are constitutional ; the treatment consequently must be general as well as special.

7. **SCROFULOUS AFFECTIONS** : an important group, depend-

ing on the scrofulous diathesis. The treatment must be constitutional, to control the diathesis, as well as locally alterative.

8. SYPHILITIC AFFECTIONS: resulting from the syphilitic diathesis, a tendency not necessarily innate or hereditary, but, ordinarily, accidental. The treatment must be the same as that which is adopted for syphilis.

9. CANCERS.—The most common form of cancer affecting the skin is that which is termed *cancroide*. The treatment is the removal of the disease by the knife, or, by preference, by means of caustics.

10. EXOTIC DISEASES: the produce of other countries; for example, lepra tuberculosa, pian, &c.

CHAPTER III.

ECZEMATOUS AFFECTIONS.

UNDER the head of Eczematous affections, we propose to assemble :—

Eczema	Impetigo
Psoriasis	Scabies
Pityriasis	Gutta rosacea
Lichen	

ECZEMA, from *εκζειν*, to boil out or boil over, is the popular Greek equivalent of our own popular term “eruption” (εας *εκζεματα*, ab ebulliente fervore, Græci vulgo appellant*), and therefore means no more than a breaking or bursting forth ; the Greek term, however, is more graphic than our own, inasmuch as it suggests the association of heat, and likens the disease to water in a state of ebullition, the little bubbles formed on the surface of the water being the representatives of the vesicles of eczema.

By the scientific Greek writers eczema was called Psora, in consideration of another of its properties, namely, itchiness ; the word psora being derived from *ψωειν*, to rub ; and the same property gave origin to the Roman term *scabies* ; the word scabies being derived from *scabere* (à *σκαπτω*, second future of *σκαφω*, *fodio*), to scratch. From psora is derived psoriasis, a term also applicable to one of the forms of eczema, namely, its chronic and desquamating form.

* Ætius.

We find, therefore, that three of the special characters of this disease are portrayed in its several synonyms ; namely, *eczema*, its eruptive character ; *psora*, the itchiness accompanying the exudative stage ; and *psoriasis*, the itchiness associated with scaliness or scurfiness.

ECZEMA is an inflammation of the skin, accompanied with alteration of its structure and derangement of its functions ; it is more *vascular*, and consequently redder, than in health, its vessels being in a state of congestion ; its *sensibility* is morbidly increased, sometimes taking on the character of itching, tingling, or smarting, and sometimes that of pain ; it is *thickened* by infiltration of serum into its tissues, sometimes fissured and sometimes oedematous ; it *exudes* a serous lymph at various times, and in various quantity, sometimes in excessive abundance ; its cuticle is sometimes raised into *papules*, sometimes into *vesicles*, sometimes wholly removed, and is reproduced unhealthily, so as to form muco-purulent secretions and squamæ of various size ; and sometimes is replaced by a *crust* of greater or less thickness, resulting from the desiccation of the morbid secretions.

In a few words, the characteristic signs of eczema are, redness, itchiness, interstitial and sometimes subcutaneous thickening, exudation, papulation, vesiculation, incrustation, and desquamation.

Eczema has no constitutional symptoms belonging to itself ; the symptoms which accompany it being such as appertain to the form of constitutional debility, which occupies the place of its predisposing cause. There are three forms of debility which predispose to eczema ; namely, nutritive, assimilative, and nervous. In *nutritive debility* the symptoms are chiefly those of deficient nutritive power, with waste of the tissues of the body, a state which gradually passes on to exhaustion and atrophy. In *assimilative debility* the symptoms are such as accompany disorder of the digestive and assimilative functions, and the secretions dependent on those functions. In *nervous debility* the

symptoms take their origin in a weakened, irritable, and exhausted nervous system, and are such as would accompany that form of debility irrespective of the cutaneous eruption. The symptoms of eczema, therefore, are such as result from the presence of the eruption on the skin ; either the irritability of the nervous system induced by a painful and itchy disorder, that destroys comfort and sleep, and sometimes gives rise to the wildest paroxysms of suffering ; or the exhaustion of the digestive, assimilative, and nervous powers, occasioned by the drain on the system of an abundant and constant discharge.

It very commonly happens that an attack of eczema is preceded by symptoms of general disturbance of the digestive organs ; by a feeling of fulness and oppression at the epigastrium, and by a feverish reaction of a mild type. These symptoms may last for several days, or for several weeks, and they cease immediately that the eruption makes its appearance ; but it would be an error to regard them as a part of the eruptive disease ; for they are occasional only, and not constant, and the same symptoms might precede a temporary diarrhoea, or a cholera, or, in fact, the evolution of a *causa morbi* in whatever shape it may be developed. It would be impossible to determine from such symptoms that an eczema was about to follow ; and an eczema is in general produced without any forewarning or premonitory symptoms of any kind.

The relief occasioned to the symptoms of general disturbance just described, is due to its *derivative* action simply. And this derivative influence is manifested in a variety of ways ; sometimes the eczema takes the place of an inveterate headache ; sometimes of a neuralgia ; of a rheumatism ; and in fact may supersede any chronic ailment to which the body is liable. The phenomena of derivation suggest to the minds of the uninstructed the idea of the exit, or the expulsion from the body, of some innate evil, and a consequent alarm lest the cure of the

eruption may act as a repercussive, and throw back upon the economy the material of disease. And this impression is strengthened by the fact that, after the sudden and spontaneous disappearance of the eruption, some new malady has immediately sprung up. But the proper way of viewing the case is, to recognize a *causa morbi*, the consequence of debility, and the possibility of the determination of that cause upon any point of the economy, the weakest being that usually selected. And if there be several weak points, then each may be attacked in succession, or the irritation existing in one may be suddenly transferred to another. Admitting these data, it must be clear that if we can cure the manifestation in one spot, we relieve it in the whole ; because a cure can alone be effected by removing the debility which is the real predisposing cause of the disease. We have no reason to fear repercussion ; our fear should be rather our incapability of mastering the disease ; and we neglect our duty when we allow the disease to run on for months and years without attempting a cure, placing our reliance on morbid nature, and hoping, if the patient be an infant, that the cutting of the teeth, or the development of puberty, or menstruation, or manhood, will eventually bring about a cure.

There is another evil in deferring a cure, namely, the setting up in the constitution of a tendency or diathesis. Diathesis is of two kinds, *hereditary* and *accidental*. The latter is the consequence of a protracted continuance of the disease, and in another generation may become hereditary. When a diathesis exists, a patient may be subject to attacks of eczema during his whole life, and every little disturbance of function of the digestive or nervous system will, in place of any other ailment, occasion an eczema.

Eczema is not contagious, although it is often met with pervading a family, or even a community, or assuming an epidemic character, and, like other chronic disorders, it may be more common in certain localities than in others. We

remember a case in which a weakly mother nursing an eczematous infant, had eczema on the arm against which the head of the child rested. The discharges from the eruption of the child were the undoubted cause of the eczema in the mother ; but this was no proof of contagion ; any discharges or any irritant would have caused irritation of the mother's skin, and in her existing state of debility, eczema is just the result that might have been anticipated ; even apart from the fact that she might also have been an example of the eczematous diathesis.

Eczema is a chronic affection and has no specific course. Like other chronic inflammations, it has a beginning and an ending ; in other words, its rise and its decline, with an intermediate period of activity of greater or less duration. In a severe case the rise may present redness, heat, swelling, papulation, and sometimes vesiculation : this may be regarded as a first stage or *first period* of the disease. Next there may succeed exudation, incrustation, and sometimes suppuration : this is a second stage or *second period*,—the stage of exaltation. Lastly, there will follow the third stage, the stage or *period of decline*, comprising desquamation, with redness, and often thickening of the skin. These three periods, when they exist, may be termed,—the *first*, the erythematous, the papular, and the vesicular period ; the *second*, the exudative and encrusted period ; and the *last*, the squamous or desquamating period.

But eczema rarely presents all these characters complete, nor do they follow in regular succession ; they are modified by constitution, by temperament, and also by situation ; and these modifications are the foundation of its varieties. Sometimes redness or vascular congestion of the skin is the dominant character, and the variety an *eczema erythematosum* ; sometimes, with the redness, the vascular congestion and serous infiltration of the follicles give rise to pimples, and the resulting variety is an *eczema papulosum* ; in a third instance the predominating character may be vesicles,

eczema vesiculosum ; in a fourth, the leading character may be exudation, and the eruption an *eczema ichorosum* ; again, there may be pustules, which are commonly of the type termed pyodermic pustules, mingled with the other signs of pathological lesion, and the variety is an *eczema pustulosum* ; or, in the chronic form, the principal feature of the eruption may be desquamation, and the variety, *eczema squamosum*.

These terms comprehend the principal forms of eczema dependent on symptoms ; but different terms suggest themselves naturally for other different conditions ; for example, the skin is sometimes cracked and fissured,—*eczema fissum* ; sometimes the thickening and condensation, in a chronic stage of the affection, suggest the terms *eczema sclerosum* and *eczema verrucosum* ; sometimes the state of the part is aptly expressed by the term *eczema œdematosum* ; sometimes, from the nature of the secretion, *eczema mucosum* ; and more than once we have met with a case to which, on account of the severe pain by which it was accompanied, the term *eczema neurosum* would be correctly applicable.

It is, however, rare to find an eczema perfectly simple in its eruption, and capable of being represented singly by any one of the terms already mentioned. More frequently two, or indeed, several of the forms may be present at the same time, and sometimes even the whole. Thus, in one case we may have an erythematous eczema accompanied with papulæ,—an *eczema erythematosum et papulosum* ; or, it may be, an *eczema erythematosum et ichorosum* ; or, if the exudation of fluid be the chief feature, we might name it *eczema ichorosum*, and in a less degree *erythematosum et papulosum*, or even *pustulosum*. Or the case might be one of *eczema vesiculosum et erythematosum* ; or an *eczema squamosum* (*eczema chronicum*), which is at the same time, in part *fissum*, and in part *ichorosum*.

Varieties of eczema are also deduced from situation : hence we have *eczema capitis*, *faciei*, *aurium*, *palpebrarum*,

oris et labiorum, axillarum, mamillarum, umbilicale, inguinum, pudendi, perinei, ani, articularum, manuum et pedum, dorsi manûs, palmare et plantare, and digitorum. Moreover, we are taught by experience that in certain situations we are likely to meet with one or other of the preceding varieties; for example, eczema capitis et aurium is commonly ichorosum in a recent attack, and squamosum at a later period; eczema articularum, eczema axillarum, eczema inguinum, and eczema pudendi are very frequently ichorosum, and sometimes mucosum. Eczema of the fleshy parts of the forearms and legs is not unfrequently vesiculosum, as is also eczema digitorum. Eczema dorsi manûs is usually papulosum; while eczema palmare is squamosum, and often, as are the tips and joints of the fingers, fissum.

The extent of the eruption will also come in for a share of consideration in the designation of varieties. The eruption may be *general* or *partial*. When partial, the patches may be single or multiple; they may be defined (*figuratum*), or diffused (*diffusum*). Sometimes they suggest the idea of the dimensions and figure of a piece of money (*nummularæ*), and sometimes are bounded by a prominent ridge (*marginatum*), and spread by the circumference, while the inflammation subsides within the included area.

The classification of Willan as applied to eczema, has the effect of making its different pathological appearances separate diseases; for example, in its early stage, and in one part of the body, the eruption might present the characters of an erythema, and be placed in the order Exanthemata; in another stage, or in another part of the body, it would be classed with papulæ; in a third, it would belong to pustulæ; in a fourth to squamæ; and in a fifth only to the order in which it is placed by Willan, namely, vesiculæ. But in truth the rarest of all the varieties of eczema is its vesicular form; and in the preceding chapter we have drawn attention to the not uncommon circumstance of the same cause, namely, the sun's rays, giving rise in different persons to

separate forms of eruption. Now, in this case, we put it to the student, whether it would not be infinitely more philosophical and certainly practical, to regard the eruption as three forms of the same disease; namely, as eczema in the three varieties erythematosum, papulosum, and vesiculosum, than to treat it as three separate diseases, belonging to different orders, under the names of erythema, lichen, and eczema.

It follows from this mode of viewing eczema, for the suggestion of which we are indebted to Hebra of Vienna, that many varieties of eruption, which by Willan would have been classed in various of his orders, are, at present, considered as forms of eczema. A step had already been taken in this direction by Willan himself, when he named one of his species eczema impetiginodes; and our own labours for several years past have tended to the development of the same idea.*

The varieties, or, as he preferred to name them, species, of eczema admitted by Willan are *general* and *local*; the general varieties being only three in number; namely, solare, rubrum, and impetiginodes. Eczema solare corresponds with eczema vesiculosum; eczema rubrum with eczema ichorosum; and eczema impetiginodes with eczema pustulosum. His local varieties are the same as our own.

Hardy arranges the varieties of eczema in three groups, having relation to the *appearance*, the *figure*, and the *situation* of the eruption. The first of these consists of eczema simplex, rubrum, fissum (fendillé), and impetiginodes; the second, of eczema figuratum, nummulare, sparsum, and diffusum; the third of eczema pilare, eczema capitis, and the rest of the local varieties corresponding with our own.

* *Vide* "Diseases of the Skin;" and in a paper on "Eczema infantile," read at the meeting of the British Medical Association in 1856.

In a tabular arrangement, the varieties of eczema admit of being grouped under three heads, in conformity with their pathological characters, or their appearance, their distribution, and their locality; the three groups being as follows :—

PATHOLOGICAL FORMS.

(Regular.)

Erythemosum	Ichorosum
Papulosum	Pustulosum
Vesiculosum	Squamosum

(Irregular Forms.)

Fissum	Œdematosum
Sclerosum	Mucosum
Verrucosum	Neurosum

FORMS OF DISTRIBUTION.

Universale	Nummulare
Figuratum	Marginatum
Diffusum	

LOCAL FORMS.

Capitis	Pudendi
Faciei	Perinei
Aurium	Ani
Palpebrarum	Articulorum
Oris et labiorum	Manuum et pedum
Axillarum	Dorsi manûs
Mamillarum	Palmare et plantare
Umbilicale	Digitorum
Inguinum	Unguium

ECZEMA ERYTHEMATOSUM is recognized by redness, thickening and hardening of the skin from infiltration of serum into its tissues, itching, and successive desquamation of the cuticle in laminae or scales.

When this form of eczema is associated with other forms of the eruption, or when the patient has previously suffered from eczema and has a tendency to eczema, in other words, an eczematous diathesis, the diagnosis of eczema erythematosum is plain ; but if it be a first attack, and is slight in its nature, like the instance we have already given as resulting from sunburn, it may be difficult to distinguish it from simple erythema. If, as is commonly the case, it is accompanied with papulæ, and gives out a serous moisture or exudation on rubbing or scratching, the case is an undoubted eczema erythematosum.

This form of the eruption is apt to occur upon the eyelids, behind the ears, around the pudendum, and, generally, in the flexures of the joints. It is the form which erythema in an eczematous constitution would naturally assume. From its proneness, in the latter stage, to perpetuate itself by desquamation, a tendency of all the forms, Hebra names it squamosum ; but we prefer to distinguish the congestion of the early stage and slighter forms of eczema by the term erythematosum ; reserving the term squamosum for the latter stage and more chronic and severer forms.

ECZEMA PAPULOSUM.—The association of papulæ with eczema is one of the commonest of its phenomena : sometimes they enter into the composition of the eczematous blotches ; sometimes they are found in the circumference around them, or dispersed more or less abundantly over the body and limbs, while eczema ichorosum holds sway in other parts ; it is, however, the predominance of papulæ over the other pathological forms which especially characterizes eczema papulosum. In general eczema, and in eczema infantile, which also is frequently general, the papulous element of the eruption is very conspicuous ; but it is nowhere more so than in the combined ichorous and papular eruption which takes possession of the back of the hands,—the lichen agrius of Willan, which, in other words, is an eczema lichenosum,

or lichen eczematosus, or, more properly, an eczema papulosum et ichorosum.

ECZEMA VESICULOSUM (eczema solare of Willan) is the rarest of the forms of eczema, although the type of the vesicular eruptions. It is most characteristically seen on the back of the hands of persons of lymphatic temperament who have been exposed to the heat of the sun's rays; and then presents itself as a confluent crop of minute vesicles corresponding with the pores of the follicles of the skin, and attended with more or less œdema of the subcutaneous cellular tissue, and interstitial infiltration of the skin itself. Another common situation of its outbreak is the fingers, especially their palmar surface. From the thickness of the cuticle in this situation, the vesicles are indistinct, and the serous fluid collects beneath it in minute beads, and raises the cuticle in plates of considerable extent, hollowed upon the under surface into vesicular cavities. In this manner the cuticle may be raised off the greater part of the circumference of the fingers.

In the course of a few days, the serum of the vesicles is absorbed; the œdema of the corium and subcutaneous cellular tissue subsides, the cuticle dries and exfoliates, and the skin returns to its normal condition. Not unfrequently, however, the newly-formed cuticle is produced unhealthily, and is thrown off by desquamation in furfuraceous scales.

ECZEMA ICHOROSUM (eczema rubrum, Willan; eczema madidans, Hebra) is characterized by intense redness, denudation of the inflamed surface, more or less thickening from infiltration of tissue, and exudation of a colourless ichor or lymph, often in abundance, and sufficient to justify the term "madidans" applied to it by Hebra. Eczema ichorosum may commence as an erythematous or as a vesicular form, and pass on to the more exalted stage of exudative activity implied by the term ichorosum. Or, an ichorous exacerbation may break out at any period of the course of a chronic

eczema, and recur from time to time during its existence. The ichorous discharge is not simply the effusion of serum from the congested vessels and tissues, but it is also an altered secretion of the skin itself; and the unformed elements of the epidermis mingling with the ichorous discharge, give it an opaque and mucous, and sometimes a muco-purulent character. The discharge is tenacious, often viscous, and forms, on desiccation, a yellowish or greyish, and more or less brittle and spongy crust, which adheres firmly to the inflamed corium, and sometimes attains to considerable thickness. Not unfrequently, at this stage of the eruption, the crust breaks up into plates of various size, and the muco-purulent secretion oozes up through the fissures. This is peculiarly the case on the scalp and on the face; on the scalp because the crust is mechanically detained by the hair; on the face, because, from the difficulty of covering it up, evaporation and desiccation are more active than in other parts.

Eczema ichorosum, therefore, presents three characters, which in it are more strikingly developed than in the other forms of eczema; namely, the redness of the inflamed corium, the copious exudation, and the consequent formation of an extensive and thickened crust. It must be borne in mind that the exudation is not the result of ulceration, as might sometimes be supposed from its muco-purulent character, but is chiefly derived from secretion. Indeed, in one form of eczema, namely, eczema intertrigo, there is often a copious muco-purulent secretion from the surface of the unbroken skin, with no other pathological change than erythema in a moderate degree.

The ichorous form of eczema is most commonly met with in the joints, as in the axilla, the elbow, and the ham; upon and behind the ears; on the face; on the nipples; at the umbilicus; and in the pudendal region. A characteristic form of the eruption in the latter region, and extending for a short distance down upon the upper and inner parts of

the thighs, is well described by Willan under the head of *Eczema rubrum*.

ECZEMA PUSTULOSUM (*eczema impetiginodes*, Willan) is a more or less confluent eruption of small pyodermic pustules, accompanying any of the forms of *eczema*, but is most frequently associated with *eczema ichorosum*. The pustular eruption must be regarded as an aggravation of the ichorous form of the disease, and is most commonly met with in regions exposed to an excessive degree of irritation, as the face and hands; in young persons, or persons of irritable temperament, or in persons considerably reduced in strength.

ECZEMA squamosum represents the last period of the other forms of *eczema*, when the pimples have subsided, the exudation has ceased, and only the redness, the thickening from interstitial infiltration, and the desquamation remain; the desquamation no longer presenting the character of exfoliation, as in *eczema erythematosum*, nor crusts, as in *eczema ichorosum*; but of small thin scales, for the most part furfuraceous, or even farinaceous. *Eczema* may from the first present these characters, and in them, that is, in the redness, thickening, itching, and desquamation in small scales—we recognize *psoriasis*, the sequence of *psora*; and where the thickening of the skin is less, and the scales thinner and finer, *pityriasis*; the whole of these forms being, in fact, the chronic period of *eczema*.

ECZEMA fissum.—When the skin has been subjected for some time to inflammatory congestion, and has become thickened and condensed by infiltration into its tissues, it chaps and cracks with extraordinary ease: the mere stretching of the fingers will cause the skin to break, and a new pathological element is added to those previously noted in connection with the disease. *Eczema fissum* is a common accompaniment of *eczema squamosum*, and is most frequently met with where the skin is naturally the hardest and the densest; for example, the tips of the fingers, the

joints of the fingers, the palm of the hand, the dorsum of the hand, and the wrists ; but it may exist in the concavities or convexities of all the joints, or at the bottom of folds in any part of the skin ; for example, in the angle of attachment of the ear to the side of the head, the nose to the face, or at the angles of the mouth.

There is a form of eczema squamosum of the palms of the hands, a psoriasis palmaris eczematosa, which is remarkable for the number and depth of its fissures ; and in eczema infantile and chronic eczema in children, the fingers have sometimes the appearance of being almost severed through at the joints.

IRREGULAR FORMS OF ECZEMA.

ECZEMA SCLEROSUM.—When chronic eczema has existed for a very considerable time on some part of the limbs, the skin is apt to acquire the hardness and toughness of leather ; such patches are usually circumscribed in form, are somewhat elevated above the surface, are attended with occasional fits of itching, and throw off a dry and scaly scurf. They are commonly designated psoriasis, and are sometimes so like patches of diffused alphas, as to be likely to be mistaken for that eruption.

ECZEMA VERRUCOSUM is an aggravated form of eczema sclerosum ; harder, harsher, and more prominent ; rough on the surface, and resembling the surface of an old fibrous wart. This latter appearance seems due to hypertrophy of the papillæ in conjunction with general thickening of the skin. The pruritus of eczema verrucosum is sometimes unusually severe and troublesome, particularly in elderly persons.

ECZEMA ŒDEMATOSUM.—Serous effusion and serous infiltration are common symptoms of eczema, particularly in lymphatic subjects ; hence an œdematous state of the cutaneous and subcutaneous tissues is a not uncommon

occurrence. It is important only in a therapeutical point of view, since the eruption rarely heals until the excess of serum in the tissues is dispersed.

ECZEMA MUCOSUM (INTERTRIGO). — Eczema sometimes presents itself as a mucous discharge, occurring between folds of the skin in infants or fat persons ; and sometimes also in the axillæ, around the nipples, in the hollow of the umbilicus, in the groins, around the anus, and in the perineum. The mucous character is given to the secretion by the intermixture, with the serous exudation, of the newly-formed material of the epidermis.

ECZEMA NEUROSUM.—We have given this name to a very distressing association of neuralgia of the cutaneous nerves with eczema. The most painful case that we remember was one in which the pain occupied the axillæ ; and from its severity weakened the nervous tone of an already weak heart. The patient was of Asiatic origin and highly irritable temperament.

FORMS OF DISTRIBUTION.

ECZEMA is rarely so general in its attack as to affect the entire body ; but such cases are occasionally seen in the adult, and more frequently in the infant.

More commonly eczema occurs in patches of limited extent, and usually of a rounded or oval form,—*eczema figuratum* ; but at other times is diffused,—*eczema diffusum*, over a considerable part of the body, as of the limbs or a portion of the trunk.

Its occurrence in small circular blotches, that in size and form have suggested the idea of pieces of money,—*eczema nummulare*, is not very rare. But a rarer form is one which we have named *eczema marginatum*, from the presence of an abrupt ridge which bounds it on all sides, and remains active and irritable when the skin within its area is in

great measure restored to its natural state. Its common seat is the perineum, and the boundary-line extends for a short distance down the thighs in front, and upon the buttocks behind. We have met with this form of eruption chiefly in officers who have returned from India for their health, and sometimes it has been associated with circular rings or marginate blotches on other parts of the skin. The eruption is excessively itchy and very obstinate, and the patients have usually spoken of it as a disease common in India, and usually considered as a kind of ringworm. A gentleman lately under our care became attacked with it in Burmah, and called it the Burmese ringworm ; it originated, he said, from the moist heat of the climate combined with the habit of frequent bathing.

LOCAL FORMS OF ECZEMA.

The LOCAL FORMS of eczema derive their chief interest from the existence of conditions favouring the development and permanence of the disease in the localities attacked, and also from the complications that are consequent on their position. Sometimes the complication is due to the *structure of the part*, as in eczema capitis, where the hair is a source of much inconvenience. Sometimes the aggravation proceeds from the unavoidable operation of *irritants* upon the diseased organ ; for example, the atmosphere, in eczema faciei, aurium, et manuum ; heat, moisture, and friction in eczema axillarum, umbilicale, inguinum, pudendi, perinei, et ani ; friction, and, during lactation, moisture in eczema mamillarum ; and motion in eczema oris, labiorum, et articulorum.

ECZEMA CAPITIS.—The forms of eruption common to the scalp are eczema ichorosum, pustulosum, and squamosum. In eczema ichorosum the hair becomes matted and stiff, a thick casing composed of desiccated crusts and matted hair

is formed upon the head, and beneath this matted case is a profusion of a tenacious and colourless, and sometimes a muco-purulent exudation. The disease gives out a disagreeable odour, which may be compared to putrid straw, and if a portion of the crust be raised, the skin beneath is seen to be vividly red, and excoriated to a greater or less extent. There are never any vesicles or papules on the scalp, but around the circumference, on the forehead, the temples, and the neck, there is redness,—eczema erythematosum; often papulæ,—eczema papulosum; and desquamation,—eczema squamosum.

The transition of eczema ichorosum into eczema pustulosum is simple enough; pydracious pustules are developed on any part of the scalp where the cuticle is unbroken, and particularly in the circumference of the disease; and the originally ichorous and limpid exudation passes quickly into the puriform state.

When eczema capitis has exhausted its secreting power and much of its activity, the scalp is left red, rough, thickened, itchy, and scaly; this is eczema squamosum; this also is the state, the exhausted psora, to which the term psoriasis is correctly applicable; the psora that is no longer humid and weeping (psora humida), but the dry and itchy psora (psora sicca). Psoriasis signifies the dry and itchy condition of the eruption, and not the scaliness, which is a consequence of the inflammation. The scaliness of eczema or psora is expressed by the term pityriasis (πιτυριον, *furfur*, bran), which also indicates the kind of scales, thin, fine, and bran-like,—in a word, furfuraceous. These terms, therefore, represent three stages or forms of eczema; firstly, the moist and active stage, or psora; secondly, the dry and itchy stage, or psoriasis; and thirdly, the squamous stage, or pityriasis.

Much of the complexity attaching to the nomenclature of cutaneous diseases arises from the mingling of the Greek and Roman names, and the misconception of their true

meaning. We have endeavoured to show that the vulgar name of the disease before us was *eczema*, or rather *eczemata*, for the Greeks spoke of it in the plural number; that the scientific synonym of *eczema* was *psora*; that *psora* in its tamed, or exhausted, or chronic state, was known by two names, *psoriasis* and *pityriasis*; *psoriasis* being intended to distinguish its itchy state, and *pityriasis* its squamous state. Moreover, it must be mentioned for the more full understanding of these terms, that *pityriasis* was limited in its application to the scalp, while on any other part of the body the disease was called *psoriasis*. The Romans rendered the words *psoriasis* and *pityriasis* by their own term, *porrigo* (à porro, quia ut porrum in tunicæ involucra, ita cutis velut in squamas resolvitur); but as *porrigo* relates to the scaliness, and not to the itchiness of the disorder, its proper synonym is *pityriasis*. *Pityriasis* and *porrigo* must therefore be regarded as synonymous, the former being the Greek, the latter the Roman term, for the same form of disease.

ECZEMA FACIEI.—Eczema in all its forms may appear on the face; in its more active forms it occurs chiefly in infants and young persons; in its more chronic forms in adults. Eczema erythematosum and papulosum combined are common to infants, and have received the name of *strophulus*, or tooth-rash; and the same forms are sometimes seen in the face of delicate persons, and especially women, and are distinguished by the appellation of *gutta rosacea*.

Eczema ichorosum of the face, as it occurs in infants, gives rise to the formation of the crust known as *crusta lactea*, and is very apt to degenerate into *eczema pustulosum* (*eczema impetiginodes*), and not unfrequently, the pyogenic tendency being in excess, the case has the character of a true *impetigo*.* The crusts vary in degree of

* *Vide* Portraits of Diseases of the Skin; the plate marked *Impetigo faciei* is of this kind; and, adopting our present nomenclature, should be termed *eczema pustulosum*.

thickness, porosity, and colour; sometimes they are grey or brownish, sometimes yellow or amber-coloured, and sometimes, from admixture with blood, almost black. The yellow and amber-tinted crusts have gained for the eruption the euphonious appellation of *melitagra** (*μελι*, honey; *αγρα*, seizure). Of the chronic forms of eczema of the face, none is more obstinate than that which attacks the nose in adults.

ECZEMA AURIUM.—Eczema of the ears is either ichorous, pustulous, or squamous. In the former the pinna is very much swollen, the meatus is obstructed by the swelling, and the limpid ichor is seen to distil from the follicles in separate drops, and often with a rapidity that reminds us of a spring. The exudation quickly dries up into yellow crusts, under which accumulations of lymph or mucopurulent fluids are detained. The inflammation occupies both surfaces of the pinna, and spreads more or less extensively to the side of the head. In its squamous form the eczema is very obstinate; it occupies chiefly the fissure behind the ear. The secretions are dried up; but the skin is red and thickened, scaly, and often cracked.

ECZEMA PALPEBRARUM.—On the eyelids the eczema is usually met with in the erythematous and squamous form; but sometimes also, in young persons, has the ichorous and pustulous character, and is associated with conjunctivitis. This latter constitutes the disease termed *psorophthalmia*.

ECZEMA ORIS ET LABIORUM.—A squamous and fissured form of eczema is not unfrequently met with around the mouth and upon the lips of young persons. The eruption is unsightly and troublesome, and often, from the extension of the cracks, very painful, and is slow and obstinate under treatment. As a necessity, where there exist cracks and fissures (*rhagades*), the skin is more or less thickened and condensed by serous infiltration.

* Alibert.

ECZEMA AXILLARUM is commonly of the ichorous kind, and sometimes erythematous. The ichorous exudation is due to the heat and moisture, and somewhat to the friction of the part; and the debility of the skin and the continuance of the irritation commonly give rise to enlargement of the superficial lymphatic glands, and not unfrequently to subcutaneous abscesses. Whenever eczema attacks the body generally in adults, the axillæ invariably participate in the disease. Such an affection is not unfrequently met with as a consequence of the exhaustion of the puerperal state, or of prolonged lactation.

ECZEMA MAMILLARUM is a painful, and often an obstinate complaint. It is usually ichorous, pustulous, and not unfrequently squamous, and deeply chapped and fissured. It is most painful and most intractable when it occurs during lactation.

ECZEMA UMBILICALE ET INGUINUM belongs to the kind of eruption which results from the heat and moisture and friction which are the consequence of the apposition of folds of the skin, as in natural depressions like the umbilicus; in the fold between the mamma and the waist; the thick folds of the neck and abdomen in fat persons and infants; the fissure between the buttocks, or between the thighs and the scrotum or labia majora. This form of the eruption is usually termed *intertrigo*; it is sometimes erythematous, sometimes ichorous, and sometimes squamous. When ichorous, the exudation is apt to assume the mucous or muco-purulent character, and continues as a morbid secretion for a considerable length of time, or alternates with the squamous form for a long period. In the squamous form there are often cracks or rhagades of considerable depth and extent.

ECZEMA PUDENDI, PERINEI, ET ANI. — Eczema is especially a pruritic affection; but the itching is nowhere more strongly manifested than in the region of the pudendum, the perineum, and the anus, both in the male and in the

female. In other respects it does not differ from the eruption in other situations, except perhaps in endurance ; for it is in no situation more lasting and obstinate. In the deepest hollows there is always a moist secretion, and in the cleft between the scrotum and the thighs, and around the anus, there are frequently painful rhagades or fissures.

The scrotum is apt to be much torn by the nails, and that which before was a mere pruritus of the skin is rapidly converted into an erythematous and ichorous surface, tender and painful.

Eczema not unfrequently also attacks the deep furrows of the folds of the prepuce, and assumes a chronic character. It is erythematous, dry, squamous, and fissured ; the skin is indurated and thickened, and is apt to contract around the glans, and occasion phimosis.

ECZEMA ARTICULORUM.—The thin skin of the flexures of joints is especially susceptible of eczema, and in an eczematous diathesis the eruption will always be found there, although it may be absent in other parts. It is commonly either ichorous or squamous, is accompanied with rhagades and fissures, and frequently bleeds during the movements of the limbs.

ECZEMA MANUUM ET PEDUM. — Eczema is always more inveterate and obstinate at the extremities of the body than elsewhere, and is more frequently met with in the hands, which are exposed to the action of irritants of various kinds, than in the feet, which are sheltered from similar causes. A form of eczema, of the squamous and fissured kind, and produced under the influence of the irritation of the wash-tub, was called by Willan the *washerwoman's itch*; a similar form of eruption, induced by dust and lime, he called the *bricklayer's itch*. The same eruption existing in the grocer and in the baker, were respectively the *grocer's itch* and the *baker's itch*. The erythema of the wrists and back of the hands which comes on in cold weather, and after a while becomes chapped and scaly, the so-called

chapped hands, is in its latter stage a chronic eczema,—an eczema squamosum et fissum.

The influence of the sun's rays upon the back of the hands has already been mentioned; and the illustration is an interesting one, inasmuch as it is that which suggested to the mind of Willan his definition of a vesicular eruption. But as we have already seen, it is also the best illustration that can be adduced for the purpose of showing the faultiness of his system. The same cause, namely the sun's rays, which in one case will produce an eczema solare, will in another occasion only an erythema, and in a third a lichen solaris; and as it would be unphilosophical to admit in these different appearances three separate diseases, we are constrained to embrace the whole under the more appropriate designation of eczema; namely, eczema erythematosum, papulosum, and vesiculosum. In this form of eruption, there is another element present that must be noted: in eczema erythematosum there is probably no swelling; in eczema papulosum there is a little swelling; but in eczema vesiculosum there is swelling to the extent of œdema, because this form of eruption is most apt to occur in a lymphatic constitution, in which there is an excess of serous fluids, and consequently all the material necessary for an effusive eruption.

ECZEMA DORSI MANUS. — Eczematous eruption in this situation is generally circular in its form,—eczema figuratum, and presents itself either as a cluster of pimples (lichen agrius, Willan), or as a red and thickened and uneven patch, that is commonly termed psoriasis. The patches are very itchy, and on being rubbed, exude a quantity of serous lymph; sometimes in the squamous stage they are more or less chapped; and sometimes pour out a little blood as well as lymph. Occasionally, these patches extend to the knuckles, and are accompanied with cracks which are painful and difficult to cure.

ECZEMA PALMARE ET PLANTARE. — In the palm of the

hand the *eczema squamosum* constitutes one of two forms of *psoriasis palmaris* which it is important to distinguish ; the other being a syphilitic affection. The *eczema palmare* presents the usual characters of the squamous form of the disease ; its dryness, its scaliness, the thickening and hardening and contraction of the skin, and its long and deep cracks in the lines of motion. The contraction of the skin is often so great that rupture seems to be its only relief ; and we are led to feel that, painful as is the remedy, the previous state must have been far less endurable. *Eczema plantare* is less frequent than the palmar form, on account of the protection which is afforded to the feet by their usual coverings.

ECZEMA DIGITORUM ET UNGUIUM. — *Eczema* on the fingers sometimes assumes the vesicular form, but more frequently is squamous, and accompanied with rhagades or cracks, which one while take the direction of the wrinkles of the joints, and another while cross longitudinally the tips of the fingers. The thick cuticle of the palmar surface of the fingers is generally raised in laminae, through which dark globules indicating the effused lymph are seen ; but on the sides and back of the fingers true vesicles are formed ; and in the thin skin of the clefts of the fingers the vesicles have a conical instead of the semi-globular form.

When the *eczematous* inflammation extends to the walls of the nails, the secretion of the nails is interrupted, they become discoloured, brittle, ragged, and uneven, and take on a morbid character,—*eczema unguium*.

DIAGNOSIS.—The distinctive characters of *eczema*, its physiognomy, so to speak, are, redness, with more or less disturbance of the cuticle ; sometimes it is raised into pimples, sometimes into vesicles, and sometimes it is broken up in lines or in blotches, and an ichorous lymph oozes from the crevices or weeps from an abraded surface ; lastly, the skin may be red, coarse, thickened, and in a state of desquamation, without any exudation whatever. Of all

these signs, exudation is the most pathognomonic and next to exudation, desquamation, and a cracked or broken surface.

CAUSE.—We have already announced that the predisposing cause of eczema is debility; and that the debility in question is of four kinds,—nutritive, assimilative, nervous, and local. The *predisposing cause* in chief is subject to prior causes, which are called *remote predisposing causes*; and between the acting predisposing cause and the active operations of the disease, or the *proximate cause*, there exist intermediate or *exciting causes*. The nature of the remote predisposing causes may be gathered from the following list; namely:—

Hereditary diathesis, strumous diathesis, weakly parentage, vaccination, dentition, eruptive and malarious fevers; errors of diet; errors of air, exercise, and clothing; vicissitudes of cold, heat, and moisture; ungenial climate; transition of seasons; excessive or rapid growth; sexual excess; deranged digestion; deranged menstruation; uterine, reproductive, and puerperal derangements; overstrained mental and physical labour; anxiety, fatigue, and affliction; nervous shock and fright; gouty and rheumatic diathesis; constitutional and organic disease; general cachexia; and hæmorrhage. The *exciting causes* may be judged of by the consideration of those which give rise to the local affection, and are as follows:—Cold, heat, moisture with cold, moisture with heat, errors of clothing and bedding, friction, mechanical and chemical irritants, and varicose veins.

PROGNOSIS.—Eczema presents itself in such an infinite number of degrees, that the prognostics of the disease must be determined chiefly by the powers of constitution of the patient. It is not in itself grave; but as it always indicates the presence of a *causa morbi* in the system, it is right to infer that the patient cannot be restored to perfect health until that *causa morbi*, whatever it may be, is removed.

For the same reason, eczema is sometimes an indication of what is popularly termed a "break up" of the constitution, and is never to be looked upon lightly: it is commonly not the disease, but the mere symptom of the disease under which the patient labours, and will get well without trouble when the patient is restored to health.

TREATMENT.—The treatment of eczema offers two indications; firstly, to cure the system; secondly, to cure the local disease; and these objects are to be attained by constitutional and local treatment.

Our *constitutional treatment* will necessarily be influenced by our perception of the cause of the disease. We have laid it down as an axiom that the cause is debility; but is it nutritive debility, or assimilative debility, or nervous debility? In all, there are certain general indications to be fulfilled; namely, to remove irritating ingesta from the alimentary canal; to regulate the secretions; to regulate the diet. Then will follow the special indications raised by the special forms of debility.

In nutritive debility, our special remedies are, good and sound food, cod-liver oil, chalybeates, tonics, and especially arsenic.

In assimilative debility, our special remedies are, mild purgatives, saline aperients, and tonics; with a moderate, wholesome, and regular regimen. And when assimilation is restored, then we may command the tonic and nutritive powers of arsenic to remove the cutaneous complaint.

In nervous debility, tonics, and especially neurotonics, are our chief instruments; quinine, iron, and above all, arsenic.

Let us take a case of eczema infantile, as illustrating nutritive debility. We have seen that the diet is wholesome, probably the mother's milk; we have seen that the bowels are regular; if they be not so, we have directed that they should be watched, and an occasional aperient administered; we prefer one grain of calomel, rubbed down with

one grain of white sugar into an impalpable powder, but we have no objection to a teaspoonful of castor-oil, or syrup of senna, or a little fluid magnesia. Well; all being so far regulated, diet, and medicine to control the general functions, and no contra-indication being apparent, such as diarrhœa or bronchitis, we proceed at once to our CURE, which we administer in the following fashion:—

R Vini ferri	.	.	.	.	.	℥iss.
Syrupi simplicis	.	.	.	.	.	℥iij.
Liquoris potassæ arsenitis	.	.	.	.	.	℥j.
Aquæ puræ	.	.	.	.	.	℥ij.
Misce; fiat mistura.						

A drachm for a dose, with meals; the drachm giving two minims of the solution of the arsenic.

To the proper administration of this remedy there are certain necessary injunctions: it *must* be administered with the meals, the best time being the middle of the meal; and the rule applies to all ages; it is *best* to administer it in one drachm doses, and without the addition of water; and it *must* be left off if it occasion, or even be suspected of producing, any unpleasant symptoms; for example, nausea, loss of appetite, colic, or prostration of power. In the latter case, its use should be suspended for three or four days, or for a week, and then it may be resumed as before, in the same or a smaller dose.

If these instructions be complied with, there cannot but be one result; namely, CURE; and often, speedy cure; and whether the cure be speedy or slow, the remedy may be steadily continued, so long as it give rise to no unpleasant symptoms, until the cure is actually attained. For infants under two years we prescribe one minim the dose, three times a day; from two years upwards to seven, the dose may be two minims; from seven to fourteen, three minims. At all ages we prefer to begin with two or three minims to test the susceptibilities of the patient, and then, if desirable,

we increase the dose. Five minims is a maximum dose, and only admissible in alphas, for which arsenic is the specific remedy.

Let us in the next place take a case of eczema in the adult, originating in assimilative debility, and occurring at the time of life so fruitful in that form of debility, say fifty; we regulate the digestive organs and secretions; we advise a regular and moderately generous diet; and bearing in mind that debility is our great enemy, we prescribe a mild aperient, such as the sulphate of magnesia, with quinine and nitric acid; or a bitter, such as gentian, orange-peel, or calumba with nitromuriatic acid, and a mild aperient pill of colocynth, blue pill, and henbane; or we may see reason to prefer the trisnitrate of bismuth with liquor cinchonæ and infusion of orange-peel; or, soda, tincture of rhubarb, and infusion of calumba. In a word, we temper a mild but efficient aperient with a tonic; and we continue this treatment until the tongue has become clean, the appetite restored, the secretions wholesome, and the tone of the system invigorated. Sometimes our patient will return gradually to health without the adoption of other means. But if, the general health being greatly improved, a lingering debility still remains behind, and the eruption continues obstinate, we then have recourse to more potent tonics, such as the citrate of iron and quinine, or the great remedy of all, arsenic. In the latter case, the formula may remain the same as that already prescribed; the commencing dose of the liquor potassæ arsenitis being two minims three times in the day, and rising gradually and cautiously to four minims. It must be remembered when prescribing arsenic, that time and small doses are more curative than larger doses continued for a shorter period, and that, to insure a course of some duration, the dose must of a necessity be small. The instructions as to the continuance or suspension of the remedy are to remain in force as in the previous case,

and any ordinary indications, as to the secretions, to be met with appropriate means.

Let us now take the third case, one of nervous debility. Here less attention is required to be devoted to the digestive organs, the secretions, and the diet; the immediate indication is tonic, and especially neuro-tonic; the citrate of iron and quinine, or possibly, from the very first, the ferro-arsenical mixture may be administered. Arsenic is a neuro-tonic, and seems to act specially on the peripheral and cutaneous nerves, improves their tone, and renders more active the nutrition and restoration of the skin.

We may mention in this place two other salts of arsenic, of great value, and which offer a means of changing the form of the remedy when such a change is thought desirable. We refer to the acid solution of arsenic, the liquor arsenici chloridi, the old solutio mineralis de Valangin, and the arseniate of soda. The liquor arsenici chloridi is half the strength of the liquor potassæ arsenitis, and the best form for its administration is as follows :—

℞ Liquoris arsenici chloridi	
Acidi hydrochlorici diluti	āā ʒij.
Syrupi simplicis	ʒss.
Aquæ distillatæ	ʒiij.
Misce; fiat mistura.	

A fluid drachm a dose; to be taken with meals three times a day; and to be discontinued if it disagree.

The acid solution of arsenic seems to be especially suitable at the period of meals, when the contents of the stomach have naturally an acid reaction, due to the presence in the gastric juice, of hydrochloric acid.

The arseniate of soda is useful for administration as a powder, well rubbed down with sugar, and also given with a meal; the dose is $\frac{1}{20}$ to $\frac{1}{12}$ of a grain three times a day, and with the same precautions as for the other forms of arsenic.

LOCAL TREATMENT.—The local treatment of eczema calls to its aid the general principles of surgery : causes of irritation are to be removed ; inflammation and pruritus are to be subdued ; excoriated and weeping surfaces are to be soothed ; crusts and sordes are to be cleared away ; dry and desquamating parts are to be softened ; and irritable and chronic states of the tissues to be stimulated to a more healthy action.

To relieve the heat and dryness and pruritus of eczema erythematosum and papulosum, the best remedies are a lotion containing one or two drachms of liquor plumbi, an ounce each of spirits of wine and aqua laurocerasi, and six ounces of simple water ; or, an emulsion of bitter almonds with two drachms of dilute hydrocyanic acid to the half pint ; or, if something more stimulant be needed, seven ounces of emulsion of bitter almonds with an ounce of spirits of wine and eight grains of the bichloride of mercury. The disadvantage of lotions is, that their benefit is temporary, and after their immediate effects have passed away, the irritation returns. In this case a slight smear over the surface with the benzoated ointment of oxide of zinc with spirits of wine or spirits of camphor (3j ad 3j) may be more successful.

In the vesicular, the ichorous, and the pustular forms of eczema, the heat, tension, and itching may be relieved by fomentations of warm water, a decoction of oatmeal, or one of poppy-heads. When all crusts and sordes have been removed by these means, the eruption should be carefully dressed with strips of lint spread thickly with the benzoated ointment of oxide of zinc,* and then carefully rolled up with the elastic cotton bandage ; when nicely packed in this way, it may be left undisturbed for one or two days ; and when the dressing is removed, the diseased surface should be care-

* We always add spirits of wine to this ointment in the proportion of one drachm to the ounce ; and whenever reference to this ointment occurs, this addition is to be understood.

fully wiped, and dressed, and rolled up as before. Sometimes the inflamed surfaces are too irritable to bear this application; in which case they may be treated by means of the water dressing, or may be covered with a sheet of cotton wool retained in its place by strapping; or, if there be not too much exudation, by dredging with starch, or a mixture of starch and oxide of zinc or calamine, covering with dry lint or cotton wool, and rolling as before. A cold starch poultice, made by introducing starch jelly into a muslin bag and binding on the part, is often an agreeable and soothing application, and may take place by the side of water-dressing, and the linseed poultice for the softening of crusts, previously to their removal and the subsequent treatment by the strips of lint spread with the oxide of zinc ointment, and elastic roller.

When the disease has passed from its more active middle stage into its third or chronic stage, it presents two new features that call for attention; one is, *irritability*, that manifests itself one while by itching, and one while by repeated exacerbations; the other is *sluggishness*. Both of these conditions require similar remedies, and those remedies are stimulants. The itching may be subdued by washing with the juniper-tar soap, and dressing subsequently with slips and roller as above. Where the sluggishness is considerable, the soap may be rubbed upon the eruption and left to dry on the surface, and either washed off in the morning or dressed at once with the strips and roller. It is in this condition of the disease that stronger remedies of every kind are called for; dressing, for example, with one of the mercurial ointments (nitrate, nitric oxide, or ammonio-chloride), with tar ointment, tar and sulphur ointment, and especially with the juniper-tar* ointment (3j—3ij ad 3j).

* The oleum juniperi pyrolignici, or *huile de Cade*, is here referred to.

When the chief feature of the local affection is pruritus, we find the juniper tar in all its forms, namely, soap, lotion, and ointment, invaluable. The lotion is made by mixing an ounce each of the *oleum juniperi pyrolignici*, *sapo mollis*, and alcohol, with five or ten ounces of water. This lotion, if need be, may be sponged over the whole body; while for local purposes a formula given to us by Hebra, composed of equal parts of *oleum juniperi*, *sapo mollis*, and alcohol, is an admirable remedy. Besides tar, as an antipruritic remedy, we may have recourse to stronger lotions of hydrocyanic acid, and especially of bichloride of mercury, than those previously advised.

There is nothing that brings a weak and irritable and angry eczema, an eczema that does not seem to quite know whether to be itchy or exudative, or otherwise rebellious, so speedily to its senses as one of these stronger remedies; it seems to act the part of a local tonic, and substitute sthenic action for asthenic action. With the former we can deal, the latter is utterly unmanageable. This is the principle on which stimulants, or, as we have named them above, local tonics, act; a solution of nitrate of silver in nitric ether (gr. j—xx ad $\bar{3}$ j), is excellent for this purpose, as are all the above remedies in turn in different cases; and sometimes at different periods of the same case.

In some of the most chronic forms, such as the eczema sclerosum, eczema verrucosum, eczema fissum of the palm of the hands and of the fingers, and, indeed, in any of the more obstinate forms of the affection, an application introduced by Hebra is of the highest value, and, indeed, indispensable; namely, a solution of potassa fusa ($\bar{3}$ j— $\bar{3}$ iv ad $\bar{3}$ j). When this solution is pencilled on the tough and thickened skin, a copious exudation takes place, and the disease is moved back at once from the third to the second stage of the eruption, and becomes amenable to the milder remedies suited to that stage. It would seem as if the tissues were too weak of themselves to throw out the serous lymph

with which they are interstitially infiltrated, and that when this is effected for them by artificial means, they become by degrees restored to their normal state. After the pencilling, or rather sponging—for a hair pencil is quickly dissolved by the solution—has been performed, the exudation should be removed, and the excoriation dressed with strips and roller, as previously directed.

The infiltration which occurs in *eczema œdematosum* is best treated with strips and roller; but if there exist also infiltration and thickening of the corium, one of the weaker potash solutions may be used. In *eczema mucosum*, the inflamed surface should be washed with tar soap, and afterwards pencilled with the stronger tar solution; and, as soon as the exudation is conquered, the surface should be dusted over with the *pulvis amyli et oxydi zinci vel calaminæ præparatæ*. In *eczema neurosum*, we have found no remedies so potent in relieving irritability and pain, as a solution of nitrate of silver in nitric ether (gr. x ad ʒj), and the stronger solution of the juniper tar. In *eczema marginatum*, the best remedies are—washing with the juniper-tar soap; sponging with the lotion of the bichloride of mercury in emulsion of bitter almonds, with spirit; and pencilling the margins with the solution of nitrate of silver in nitric ether; or frictions with the *unguentum hydragryri nitratis*.

In *eczema capitis* the hair constitutes a complication, and when the means of cleanliness are not easy of access, it may be necessary to remove it: this is a practice, however, which we have never occasion to adopt; soap, especially the juniper-tar soap, tepid water, the comb, the brush, these are all-sufficient means for removing the worst kinds of sordes and crusts; and with these it must be done even when the hair is shortened or thinned. After drying the scalp, it should be thoroughly anointed with a diluted pomade of the nitric oxide of mercury ointment (ʒss ad ʒiss), and left for twelve hours. The combing and brushing and

anointing may be repeated every twelve hours ; but unless the head have been previously neglected, or the accumulation of crusts excessive, the ablution will not require repetition.

When eczema capitis has entered the squamous or chronic stage, and has become a pityriasis, then the treatment must be somewhat more stimulant ; for example, daily matinal ablution with the juniper-tar soap ; active friction with the nitric oxide pomade ; and plentiful combing and brushing ; the intention of this treatment being to remove sordes and scurf, and restore healthy nutrition and tone. In this case, the combing and brushing and inunction must be practised twice in the day.

For the face, the ears, the axillæ, the nipples, the umbilicus, the groins, and the limbs generally, the benzoated ointment of oxide of zinc is the best application ; and in the chronic stages, ablution with soap, previously to the ointment dressing. For the eyelids, and the more delicate parts of the pudendum, an ointment of acetate of lead (gr. v ad ʒj) or a cerate of camphor of the same strength, will be found useful. For the pudendum, perineum, and anus, when the itching is very troublesome, relief may be obtained by the application of the diluted ointment of juniper tar (ʒj ad ʒj), after ablution with the juniper-tar soap ; while on the hands and fingers it may be necessary to have recourse to the strongest mercurial ointments, after previous ablution with the juniper-tar soap. In our remarks on the treatment of eczema in general, we have already pointed out the advantage of careful dressing, clever bandaging, and in the very chronic forms of the complaint, particularly on the palms of the hands, the necessity of arousing a new action by the strong stimulus of a potash solution. The treatment of eczema unguium must be directed to the skin of the walls of the nails, and the surrounding integument.

PSORIASIS AND PITYRIASIS.

The terms psoriasis and pityriasis are so familiar and so convenient in cutaneous nomenclature, as to be almost indispensable; and if they be employed in their proper signification, and that signification be strictly adhered to, there can be no objection to their use. Both are forms of eczema, of that later period which is termed eczema squamosum or chronic eczema; one is reserved to distinguish squamous eczema of the scalp, namely, pityriasis; and the other, squamous eczema of the rest of the body, namely, psoriasis.

PSORIASIS is the proper term for that state of the skin in which the integument is red, coarse, thickened, wrinkled or smooth, brittle, dry, itchy, and desquamating. The squamæ are sometimes light and furfuraceous, sometimes thick and laminated; sometimes easily detached, and sometimes more or less closely adherent. It may possess these characters almost from the first, having simply passed through the preliminary erythematous or congestive stage; or they may be the sequelæ of the exudative and encrusted stage. In one situation, at least, the eczematous eruption always assumes the characters of psoriasis, namely, the palm of the hands,—psoriasis palmaris.

PITYRIASIS is a chronic eczema—a psoriasis—limited to the scalp. Its characters are almost identical with those of psoriasis; any differences that may exist being referrible to a difference of organization of the skin. In pityriasis the integument is less wrinkled and brittle than in psoriasis, and the desquamation finer and lighter, being sometimes branny or furfuraceous, and sometimes mealy or farinaeous. Like psoriasis, it may follow immediately upon eczema erythematousum, without any intermediate stage; the exudative stage being, as it were, consumed in the morbid secretion of the cuticle, which converts it from a tough and horny layer into a pulverulent desquamation.

In this way pityriasis becomes the type of an erythematous congestion of the skin, accompanied with a fine furfuraceous or farinaceous desquamation—a more superficial affection than that which is conveyed by the term psoriasis; and in this sense we apply it to small circular patches covered with farinaceous scales that are not uncommonly met with on the faces of children, particularly of light complexion—a kind of pityriasis figurata.

Willan and Bateman distinguish four varieties of pityriasis; namely, Pityriasis capitis, rubra, versicolor, and nigra. *Pityriasis capitis* is an erythematous desquamation of the heads of infants and old persons, which is prone to degenerate into eczema, or, in their language, into “porrigo.” They also include in the same term the little broken clots of sebaceous substance which are so frequently seen on the heads of young infants. *Pityriasis rubra* is an eruption of elderly persons, and a slight form of “psoriasis diffusa.” *Pityriasis versicolor* is an affection that will be treated of among discolorations of the skin, under the name of Chloasma; and *Pityriasis nigra* is an eczema erythematosum of “children born in India and brought to this country.”

We may therefore regard pityriasis as a convenient term for distinguishing a more superficial congestion of the skin than that of psoriasis; although, in truth, a milder form of psoriasis, associated with a lighter and thinner kind of desquamation.

LICHEN.

As eczema is the type of the vesiculæ of Willan, lichen is the type of his order Papulæ. But, as it has been already shown that vesicles are not necessary to constitute an eczema, and that eczema is a papular as well as a vesicular eruption, we have now only to treat of those papulæ which may fairly be considered apart from eczema, and which may

be regarded especially as a papular eruption. In fact, we purpose to assemble under this head only those affections which are not admissible into the family of eczema, under the comprehensive definition of that disease already given, and which are obviously different in their nature. We hope in this way to avoid the confusion which Willan himself, as well as more modern authors, have introduced into this group. By lichen we intend to convey the idea of papulæ which are *dry* in their nature throughout their entire existence, and are never associated with an exudation of any kind; whereas, all papulæ which at any period of their course are affected by exudation, or are associated with exudative disease in any other part of the body, should at once be turned over to eczema, the mother of moist pimples and exudation.

On this principle it is clear that we must banish lichen agrius from the family of lichens and restore it to eczema, to which, from its exudative nature, it obviously belongs; indeed, this transfer has been anticipated by the term *lichen eczematousus*, which has already been attached to it; the eruption being, according to its characters, an eczema lichenodes, or, more simply, an eczema papulosum et ichorosum.

And also with the view of simplifying the group, we shall consider under the head of lichen the strophulus of Willan, or rather such of the varieties of strophulus as are true to the characters which he has laid down as the type of the affection. It is obvious that several of his varieties should be regarded as forms of eczema infantile rather than true papulæ, and have been retained in consequence only of their occurrence in infants; strophulus being especially an eruption of children. But as a lichen strophulus, a lichen of infants and children, strophulus will occupy its proper place in the lichenous group, and especially by the side of lichen urticatus, which it resembles in several respects.

The term lichen is derived from the Greek λειχην, a tree

moss, and in the plural number *λειχνηες* was probably used as the popular appellation of those clustered groups of pimples which at the present time we term lichen circumscriptus and lichen agrius. It doubtless took its origin from the lichens of the vegetable kingdom. The lexicons define it as a disease of trees, one author designating the olive, another the fig, as the subjects of its attack, and disputing to which the term properly belongs; Theophrastus declaring that it was the olive, while the moss on the fig he termed psora.

LICHEN is an eruption of papulæ, resulting from congestion of the vessels of the follicles of the skin, and some degree of infiltration into the tissues of the walls of the follicles. The pimples are conical in form, minute, more or less deeply red, transparent at the summit, and itchy, and may be compared to the normal asperity of the skin, termed cutis anserina, although, from the presence of vascular congestion and infiltration, they are necessarily larger and more prominent than the latter. They are solid, and contain no fluid, the transparency of their points being due to the conical wedge of cuticle which occupies the aperture of all the follicles; and when scratched they give forth a drop of blood, followed by an oozing of a minute drop of serum.

When the pimples of lichen are dispersed singly over the skin, they subside by degrees, and are followed by a slight exfoliation, corresponding with the summit of the papule. When they occur in clusters, they are accompanied with redness, and on the decline of the redness, are succeeded by a laminated exfoliation of the cuticle. When, however, they have been rubbed or scratched, each papule becomes covered on the summit with a small scab, which is sometimes thin and greyish, sometimes thick and amber-coloured, or brown, and sometimes, when arising from desiccated blood, almost black.

The pruritus of lichen is of the hot and tingling kind, and sometimes very severe. Like eczema, lichen is non-

contagious, and is unattended with special constitutional symptoms.

The *varieties* of lichen are founded on the manner of distribution of the eruption, on its symptoms, on its cause, and on its situation. The *distribution* of the pimples is sometimes dispersed and general, as in lichen simplex; sometimes aggregated, as in lichen circumscriptus, lichen circinatus, and lichen gyratus. The *symptoms* are sometimes remarkable for the pungency of the itching and tingling, as in lichen urticatus, or for the colour of the pimples, as in lichen lividus. Heat of climate gives a distinction to lichen tropicus; and situation to lichen pilaris, and to lichen strophulus.

In a tabular form we should arrange the varieties of lichen as follows:—

Lichen simplex	|	Lichen strophulosus
„ dispersus		„ urticatus
„ circumscriptus		„ tropicus

To which may be added as sub-varieties:—

Lichen pilaris	|	Lichen circinatus
„ lividus		„ gyratus

Lichen lividus and pilaris, appertaining in chief to lichen simplex; and lichen circinatus and gyratus, to lichen circumscriptus.

LICHEN SIMPLEX.—In the simplest form of lichen, the papulae are more or less thickly set or dispersed over the surface of the body. They are of moderate redness, pretty uniform in size, and attended with considerable itching and tingling. When they subside, they are followed by a moderate degree of laminated and furfuraceous desquamation. When the eruption is scanty but general, they

present more or less of a corymbose arrangement like the blotches of measles; and in some parts of the body this disposition is remarkable. It is also to be noted that in some situations the papulæ are larger than in others; for example, on the face and upon the limbs. Sometimes the extent of the eruption is exactly bounded by the limits of an article of dress, as in a well-marked case of lichen simplex illustrated in one of our Portraits of Diseases of the Skin.

LICHEN DISPERSUS, VEL PRURIGINOSUS. — Instead of being thrown out in crops and distributed more or less abundantly on parts or on the whole of the skin, lichen sometimes presents a dispersed character; the papulæ are solitary and scattered; the commoner seats of election being the front of the forearms, the lower part of the abdomen, the inside of the thighs, and the ankles. The papules are hard to the touch, only slightly red at first, but more conspicuous after they have been scratched, and especially remarkable for a severe and teasing itching, the eruption bearing no proportion in appearance to the annoyance and suffering which it occasions. This variety may be regarded as representing especially the pruritic element of lichen, while lichen simplex represents its papular character: hence, we have termed the eruption lichen pruriginosus. It is the commonest, although not the typical form of lichen, and is frequently met with as a sequel of scabies.

It appears to be more than probable that this eruption is the same as that described by Willan under the name of *prurigo mitis*.

LICHEN CIRCUMSCRIPTUS is an aggregated form of the eruption, in which the papulæ are elevated in considerable numbers, and constitute one or more patches of a circular or oval form. The remarkable characters of the eruption are the close aggregation of the pimples, and the abrupt

line by which they are separated from the adjoining skin. They are met with chiefly on the chest, the hips, and the limbs; and when they subside, the skin remains for some time rough, wrinkled, and furfuraceous.

LICHEN STROPHULOSUS.—The strophulus of Willan is clearly a lichen, modified by its development on the sensitive skin of infants and children, instead of the firmer and less irritable skin of the adult. The papulæ are large as compared with those of the adult; they are sometimes of a vivid red colour, sometimes only reddish; at other times whitish, with a reddish areola; and sometimes white and smooth. They are accompanied with pruritus, subside in a period varying from a few days to a few weeks, and are followed by a furfuraceous desquamation of the cuticle.

Willan describes five varieties of this eruption, namely, Intertinctus, Albidus, Confertus, Volaticus, and Candidus.

Strophulus intertinctus, the red gum or red gown,* is distinguished by papulæ of a vivid red colour, interspersed with red dots (probably congested follicles without prominence), and large erythematous patches. Sometimes, he says, there are vesicles on the hands and feet, but the fluid is absorbed without rupture. The rash occurs for the most part on the cheeks, the forearms, and the back of the hands; but is sometimes distributed generally over the body.

Strophulus albidus is a sub-variety of strophulus intertinctus; the papulæ being hard, minute, whitish, and only slightly elevated, and sometimes encircled by a halo of redness. They are met with chiefly on the face, neck, and breast.

Strophulus confertus (rank red-gum, tooth-rash) seems to belong to eczema infantile rather than to lichen. The papulæ are more extensively distributed, and less vivid

* Evidently a mispronunciation of "gum."

in colour than those of *strophulus intertinctus*. They are sometimes developed in patches of large size, and sometimes the cuticle cracks, and they present the characters of intertrigo. Sometimes the eruption fades and disappears in a fortnight, and sometimes its duration is prolonged by repeated recurrence for two or three months.

Strophulus volaticus is a rarer form of the eruption, and belongs to the group of lichen circumscriptus. It breaks out in circular patches or clusters of papulæ, which turn brown in four days and disappear. Other patches appear in succession, and the disease acquires a duration of three or four weeks.

Strophulus candidus is a hybrid that would perhaps be better omitted altogether. The papulæ are large, smooth, and shining, and have no redness around their base. They would seem to be whiter, smoother, larger, and more passive than the papulæ of *strophulus albidus*. They have been met with on the shoulders, the upper arms, and the loins; and they disappear in about a week. Willan saw them once associated with *strophulus confertus*, appearing on the face and neck; and, in another instance, he found them on the arms of a child three years and a half old, who was cutting some double teeth, and likewise had *porrigo larvalis*, or, in modern language, *eczema ichorosum* and *pustulosum* of the face.

LICHEN URTICATUS is a natural transition from lichen *strophulosus*, inasmuch as it is an eruption which belongs especially to children; begins with inflamed spots, which are succeeded by larger pimples than ordinary lichen, and is accompanied with severe pruritus. This form of lichen was first described by Bateman, and is extremely well marked; the spots at their first appearance resemble gnat-bites or bug-bites, and remain inflamed for a day; after which the redness and pimple subside. When, however, they are rubbed or scratched, the pimple becomes more prominent, and bleached like the wheal of *urticaria*, and instead of sub-

siding, remains for several days ; and if the scratching be such as to remove the head of the papule, a small drop of blood escapes, and dries up into a minute black scab. As the eruption is successive, a few spots appearing each night, and occasionally also in the day, the body and limbs become spotted all over with pimples in every stage of progress. They are commonly single in their outbreak, but occasionally form, here and there, a small cluster.

The term *urticatus* is warranted not only by the occurrence of muscular spasm in the pimple, which gives it a bleached appearance similar to that of the wheals of *urticaria*, but also by the severe, and frequently intense tingling and itching, which destroy sleep, and often affect seriously the child's health. The *pruritus* is commonly set up by the heat of bed, and sometimes by mental emotion. The eruption is obstinate in its nature, and often lasts for many months.

LICHEN TROPICUS, or prickly heat, is the usual form of lichen as it attacks Europeans in hot climates. Dr. Winterbottom describes it as consisting "of numerous papulæ, about the size of a small pin's-head, and elevated so as to produce a considerable roughness of the skin. The papulæ are of a vivid red colour, and often exhibit an irregular form, two or three of them being in many places united together ; but no redness or inflammation extends to the skin in the interstices of the papulæ.

"The eruption is diffused over those parts of the body which are usually covered, as the neck, breast, arms, legs, and inside the thighs. It does not often appear on the face, excepting on the upper part of the forehead, contiguous to the hair ; neither is it ever found in the palm of the hands, sole of the feet, nor on the hairy scalp. The number of the papulæ is much increased by wearing flannel, or clothes too warm and thick for the climate. When perspiration is very copious, small vesicles, containing a limpid humour, are often intermingled with the prickly heat, more especially

on the breast and about the wrists ; but they terminate in scales, having no disposition to ulcerate, though violently scratched. A troublesome itching attends the prickly heat, and prevents sleep during the night. There is likewise a frequent sensation of pricking, as if a number of pins were piercing the skin. This often takes place suddenly after drinking a dish of tea, or any warm liquor, so as to cause the person affected to start from his seat. The eruption is in general stationary, and appears equally vivid in the day and in the night. It does not leave one part and arise on another, unless the former be much exposed to cold, and the latter be heated by additional clothing, or by friction. An increase of heat, indeed, in all cases, produces a greater number of papulæ. They sometimes disappear on a sudden, and return again as suddenly, without any obvious cause ; but whenever the eruption continues for a length of time, the papulæ throw off minute scales, and are succeeded by a fresh crop, no vestiges being left in the skin. The prickly heat is in general considered as a salutary eruption ; whence we are cautioned not to repel it from the skin by cold or other external applications. Such a repulsion cannot, however, be easily effected ; it is certainly not produced by bathing, which has been hitherto thought highly prejudicial. A vivid eruption of the prickly heat is a proof that the person affected with it is in a good state of health, although its absence does not always indicate the contrary. The sudden disappearance of it which frequently happens is rather an effect than a cause of internal disorder, as of fever, or of any slight complaint of the stomach ; in the latter case, a temporary stimulus applied to the stomach, as by spirits, tea, or other warm liquids, has the power of restoring the eruption. Its appearance on the skin of persons in a state of convalescence from fevers, &c., is always a favourable sign, indicating the return of health and of vigour.

“ Various means have been employed to alleviate the

itching and tingling of the prickly heat ; the favourite remedy at Sierra Leone is the juice of lime rubbed on the skin, which, however, has no considerable effect. I have found it of most advantage to use a light cool dress, and to avoid the drinking of warm liquors."

LICHEN PILARIS.—We have seen that lichen has its pathological seat in the follicles of the skin ; we are therefore prepared to find a modification of the papules bearing relation to the size or closeness of distribution of the follicles. Thus, on the trunk of the body the papulæ are small ; on the limbs they are coarser ; while on the scalp, where the largest follicles exist, papules are almost wholly wanting. On the limbs, and particularly on the lower limbs, we sometimes meet with papules which surround the hairs at their escape from the follicles, so that the hairs have the appearance of growing out of the papules : this is lichen pilaris ; and its occurrence is evidently due to a physiological cause. Lichen pilaris is therefore nothing more than a lichen simplex developed on the limbs, and especially the lower limbs, in relation with the abundant hairs and coarser follicles which are found in that region.

LICHEN LIVIDUS.—In peculiar states of the constitution, the circulation in the papules is so sluggish that the venous change of the blood has time to take place in the congested vessels, and the papules have consequently a purple or livid hue. This alteration of colour is most commonly met with in the lower extremities, where the papules are usually of large size ; and we have seen it in persons enjoying an average state of health, and surrounded by the comforts and even luxuries of life. It is not necessarily a disorder of the squalid and the ill-fed ; although sometimes associated with the petechiæ of purpura and other indications of a cachectic habit. Lichen lividus is therefore a lichen simplex accompanied with a torpid circulation through the cutaneous vessels.

LICHEN CIRCINATUS is a modification of lichen circum-

scriptus, occasioned by the subsidence and dispersion of the papules in the middle of the patch; and commonly by the extension at the same time of those of the circumference. The patch is thereby converted into a ring, with a border of varying breadth, and may run on to a considerable size.* At other times the ring is broken at one point, and the extension takes place irregularly by the remainder of the segment; or the patch runs on in a longitudinal direction to a considerable length, and is more or less tortuous in its course.

This latter is the *LICHEN GYRATUS*, or convoluted form of the eruption, and is a mere modification of *lichen annulatus*; both *lichen annulatus* and *gyratus* being simply alterations in figure of *lichen circumscriptus*.

DIAGNOSIS.—Lichen, being a pimple, cannot be confounded with any other pathological form; if, associated with the papular eruption, there be other pathological forms present, such as erythema, vesicles, disruption of the cuticle, or exudation, the case is no longer one of lichen, but an *eczema papulosum*; although, a few scattered vesicles on parts of the skin, while the chief extent of the eruption is papular, is not inconsistent with the diagnosis of the eruption as one of lichen. When, with the papular eruption, there are indications of the presence of the *acarus* in the cuticle of the hands, the case is scabies; and where the itching is violent and intense, the pimples are wanting, and other indications exist of an unhealthy nutrition and innervation of the skin, the disease is *prurigo*.

CAUSE.—The cause of lichen is identical with that which

* The description of *papulæ* by Celsus harmonizes remarkably with this description. "There are," he says, "two kinds of *papulæ*," that is, papular eruption; "in one, the skin is roughened, with very small pustules (*i. e.* pimples); is red, and slightly eroded; the eruption being somewhat smoother in the middle than at the circumference, and spreads slowly. This kind begins for the most part as a circular eruption, and spreads by the border."

gives rise to eczema, namely, *debility*; the difference in the form of the eruption being due to constitution and temperament. Where the temperament is lymphatic, eczema will be developed; while in a bilious, and especially in a nervous temperament, the eruption will be lichen; the essential differences between them being the difference of *moist* and *dry*; the latter being associated with irritability of the nervous system. The kinds of debility also resemble those of eczema, namely, nutritive, assimilative, nervous, and local; and the remote predisposing causes: cutaneous irritability, the sequel of scabies; deranged digestion; coldness of season and climate; errors of diet; errors of air and exercise; the eczematous diathesis; vaccination; dentition; and excessive lactation. With regard to strophulus, Bateman remarks that it arises from an "irritability of the skin at that period of life when the constitution" is easily "disturbed by irritation, either in the alimentary canal, the gums, or other parts."

PROGNOSIS.—Lichen is by no means serious, and is only of importance from the irritable pruritus by which it is accompanied, and which, by destroying rest, tends to weaken the system and to produce general disorder of the economy. It is usually a milder malady than eczema, particularly the local forms, and of shorter duration, lasting, commonly, only a few weeks, but sometimes prolonged for several months, and even for years. The time of life at which it is most frequently met with is childhood and maturity; but it is also observed at other periods. Lichen strophulosus is an eruption of infants, and lichen urticatus is chiefly met with in young children.

TREATMENT.—The constitutional treatment requires the mildest aperients to regulate the digestive organs and secretions, followed by bitters and the mineral acids, by chalybeates, or by quinine. In chronic cases, arsenic, as prescribed for eczema, will generally effect a cure.

The internal remedies recommended by Bateman for

strophulus are, gentle laxatives, when any feverishness is present, followed by decoction of bark, or chalybeates; of the latter, he particularly favours the tartrate of iron. Doubtless had the superphosphate been in use in his day, he might have given it a preference, as being peculiarly suitable to children. To his internal treatment he joins, a carefully selected diet, proper exercise, and the use of ablutions with tepid water, plain and with the addition of milk. He likewise expresses an old-fashioned dread of repercussion of the eruption from exposure to cold draughts of air, or the use of cold water, and he suggests that in such an event we should administer some slight cordial, such as a few drops of sal volatile, and apply a blister externally. At the present day we prefer the stimulus of mustard to that of cantharides for the skin of infants, or frictions with a mildly stimulating liniment, such as cajeput oil with soap liniment.

The *local treatment* of lichen calls for the use of ablutions with the juniper-tar soap, tepid bathing, and anti-pruriginous and moderately stimulating lotions, such as an emulsion of bitter almonds with hydrocyanic acid, or with bichloride of mercury and spirits of wine. But the most certain and powerful anti-pruriginous lotion is one composed of the pyroligneous oil of juniper, spirits of wine (of each an ounce), and water (six ounces). The latter remedy has been found very successful in lichen urticatus. When the lichen circumscriptus is obstinate, it may be dispersed by gentle friction with the ammonio-chloride, or nitric oxide of mercury ointment.

IMPETIGO.

IMPETIGO is a Latin term, derived, according to Pliny, *ab impetu, impetu agens*, acting with force, with severity, and conveying the idea of a more energetic form of inflammation than that which accompanies the two preceding affections, eczema and lichen. Eczema, as we have seen, is

essentially an exudative, a lymphatic, or a moist affection, an affection in which the exuded material is a serous lymph; lichen is a dry affection, without exudation, but with an increment of pruritic irritation; while impetigo must be regarded as representing the pyogenic or purulent element. The student will easily appreciate these distinctions, and they will serve to illustrate three of the eight types of the Willanean classification.

These terms are purely arbitrary, and therefore arises the greater necessity of making them definite. Eczema conveys in its meaning no idea of exudation; lichen, no idea of solidity and pruritus; and as little does impetigo any notion of pus-formation. Moreover, in eczema we find all the three affections combined: with exudation in one part, there are lichenous papules in another, and impetiginous pustules in a third; and to express the combination we have invented the compound terms, eczema lichenodes, or eczema papulosum, and eczema impetiginodes, or eczema pustulosum.

If we turn to our authorities, we discover another argument for precision of definition. The impetigo of Celsus is throughout an eczema; he gives us no hint of any distinction founded on the presence of pus. The impetigo of Willan, although founded on the notion of pus, fails to make the pustule definite, and embraces every form of eczema in which a purulent or muco-purulent secretion prevails. Hence the necessity of representing these distinctions each by a substantive malady; namely, eczema, the impersonation of sero-lymphatic exudation; lichen, the impersonation of the solid, and dry, and itchy papule; and impetigo, the impersonation of pus, or of a purulent secretion; and establishing an identity between eczematous and vesiculous, or more properly, exudative; between lichenous and papulous; and between impetiginous and pustulous.

There remains, however, this further and very important

distinction, that eczema, being the mother disease, embraces in itself all the papulæ and pustulæ which may chance to be associated with it ; whereas, the term lichen is to be strictly limited to papulæ without vesicles, exudation, or pustules ; and impetigo, to pustulæ without vesicles, exudation, or papules. By this arrangement we gain precision ; and we gain confidence in the use of the language of our science, a very important consideration.

IMPETIGO is an inflammation of the skin, accompanied with the formation of pus, which raises the cuticle into small pustules. The redness is commonly vivid ; there is some swelling ; the pus is light-coloured and of the kind termed sero-purulent ; but may present every tint of yellow in its hue ; and dries up into a greyish or amber-coloured crust. The crust remains adherent for some days, and at its fall, leaves the skin red and shining, but without any permanent mark or scar. The eruption is non-contagious, like its congeners eczema and lichen, and is not attended with constitutional symptoms.

The absence of cicatrix marks the fact of the superficial operation of the inflammation, and affords us evidence that the pus is not generated at the expense of the vascular tissues of the skin, but is simply a morbid transformation of the newly-formed cells of the rete mucosum. Indeed, it would be incorrect to regard the pustule of impetigo as a true pustule, such as that of ecthyma or variola, which is the result of a destructive alteration of the cutaneous tissue, and consequently leaves behind it a permanent cicatrix ; but as a mere modification of the serous vesicle, a vesicle, in fact, containing a sero-purulent fluid. Hence, it is no uncommon phenomenon to see one of these sero-pustules of larger size than usual, surrounded by several coherent vesicles, which invest it in a circle, and form together a small composite patch. The reading of such an appearance is briefly, an energetic burst of inflammatory action in the production of the primary or central pustule, and a weak-

ening of energy in the formation of the secondary, the circumtangent, and subordinate vesicles.

The pustule of impetigo is of the kind termed *psydracium*, and in the plural *psydracia* ($\psi\upsilon\chi\rho\alpha\ \iota\delta\rho\alpha\kappa\iota\alpha$, *frigidaë guttulæ*), that is, a pustule or pustules produced with little heat or inflammation, commonly aggregated or confluent, and, after the discharge of their pus, pouring out "a thin watery humour, which frequently forms an irregular incrustation."

Impetigo is an affection indicative of a lower grade of vitality than either eczema or lichen, and is met with most frequently in those of a cachectic habit, and particularly in children and women. It is rare as compared with the former affections, and is more commonly seen amongst the poor, and in workhouses, than in the middle rank of society.

The *varieties* of impetigo are two in number, namely, impetigo figurata and impetigo sparsa; the former indicating a state of aggregation of the pustules, and the latter their dispersion. To these Willan added three others, namely, erysipelatodes, scabida, and rodens, of which the first and second evidently belong to eczema, and the third is a syphilitic ulceration. An impetigo capitis, admitted by ourselves, must also be transferred to eczema capitis.

IMPETIGO FIGURATA appears in the form of clusters of small pustules developed upon a more or less inflamed and swollen ground, and forming a circumscribed and often circular patch. There may be several of these patches developed on the trunk of the body or limbs; but they are most frequently observed on the face, and particularly around the mouth. They are often chronic, and often successive in their occurrence.

IMPETIGO SPARSA is the scattered form of the eruption. The pustules appear singly or in smaller clusters than in impetigo figurata, and are dispersed over the whole body, being not unfrequently met with on the hands and feet of children.

The impetigo sparsa very commonly presents on certain parts of the body, and especially upon the hands and feet of children, the characters before referred to of a central pustule with a surrounding circle of confluent vesicles or phlyctenæ. This form is so frequent that we have thought it deserving of a separate designation, and have named it *impetigo phlyctenodes*.

DIAGNOSIS.—The only pustule with which impetigo can be confounded is ecthyma; the characters of distinction, however, are sufficiently obvious. The small congregated sero-pustules of the former standing upon a slightly swollen but not much inflamed ground, are in striking contrast with the large, well-formed, deep yellow, solitary semiglobes, with inflamed and hardened base, of the latter; the former a psudracious, the latter a phlyzacious pustule; the former disappearing without leaving a trace behind, the latter leaving a cicatrized pit of greater or less permanence.

CAUSE.—The cause of impetigo, as of the other eczematous affections, is debility; the debility being chiefly of the nutritive kind, and the most prominent of the remote predisposing causes, general cachexia, bad ventilation and drainage, errors of diet, and the after-irritation of scabies.

PROGNOSIS.—Impetigo is not a serious affection; but as it betokens constitutional debility, a pyogenic diathesis, and a tendency to cachexia, might possibly lay the foundation of a more grave disturbance of health, if not speedily and effectually checked.

TREATMENT.—The indications for treatment are the same as those which are applicable to the previous forms of eczematous affection, and the remedies of a similar class: the regulation of the digestive and secreting organs when they are found to be faulty, and the succession of bitters with the mineral acids, chalybeates with the mineral acids, quinine, and where the disease assumes a chronic character, the ferro-arsenical mixture, or one of the other forms of that mineral.

The *local* treatment should be similar to that for eczema : saturnine lotions if there be much heat, and subsequent dressing with a cerate of acetate of lead ; or the benzoated ointment of oxide of zinc with spirits of wine ; lastly, in the squamous stage of the eruption, ablutions with the juniper-tar-soap and slight inunction with the benzoated ointment of oxide of zinc, or one of the mercurial ointments considerably diluted (3ij ad 3j). Where ointments are unsuitable, we must trust to lotions, and dredging with a desiccative powder, such as oxide of zinc and calamine, of each one drachm, diluted with six drachms of powder of starch.

SCABIES.

SCABIES—derived from *scabĕre*, to scratch—is the Latin representative of Psora, our modern Eczema ; but is at present used in a much more limited sense ; no longer the head of a group, but, comparatively, an insignificant member.

Scabies is an eczema, dependent, not upon a constitutional cause, like the preceding diseases ; but upon a local and special cause—the presence in the cuticle of the *acarus scabiei*.

The *acarus scabiei* in this country, and amongst cleanly people, has its habitat only in the hands ; in foreign countries it is said to be more generally distributed, and to be found in other parts. Being present, therefore, only in the hands, the eruption which is thrown out upon the rest of the body is the result of an irritation communicated through the nerves, in other words, a sympathetic irritation, and the kind of eruption will be influenced by the constitution and temperament of the subject. In a person of nervous temperament, it may consist of redness or erythema, and papulæ ; in a person of lymphatic tempera-

ment, besides erythema and papulæ, there will be vesicles also ; and in a child of full habit and weakly powers there will be, in addition to erythema, papulæ, and vesiculæ, a crop of superficial pustules of moderately large size thrown out upon the hands and feet.

The eruption is found, in different parts of the body, to be variously distributed ; it is always present, and usually abundant, upon the hands ; next in quantity it is found in the flexures and upon the front of the forearms ; then on the lower half of the abdomen ; upon the upper and inner part of the thighs ; upon the penis and podex ; and, in children, upon the feet.

The habitat of the acarus is indicated by a furrow in the cuticle. The furrow has necessarily a ragged edge, and if it be followed with the eye, it will be seen to dip below the surface of the cuticle like a tunnel, and run on for some distance further. The upper wall of the tunnel is arched, and presents a series of convexities that suggest the idea of a string of beads, and, at the extremity, the tunnel terminates in a kind of circular dome, and is larger than the rest of its area. The tunnel is the cuniculus or burrow of the acarus, and under the semi-globular dome at the end of the cuniculus the little animal will be found. If this part be closely inspected, there will be seen shining through the thin dome of cuticle, and corresponding with the most distant segment of the dome, a reddish-brown crescent ; this crescent is the chytinous covering of the head and forelegs of the animal, and, frequently, a whitish, pearl-like globe may be seen occupying the rest of the dome : this is the abdominal segment of the animal.

The cuniculus is always more or less curved and tortuous, and frequently reaches half an inch in length. Sometimes the furrow begins at a circular or oval space which represents the base of a destroyed vesicle, and sometimes a vesicle may be found in the course of the cuniculus ; or the cuniculus may be lifted up by a vesicle, and the acarus seen

at the end of its cuniculus and within the cuticular wall of the vesicle ; but it is never met with in the vesicle itself ; the vesicle being the result of the irritation caused by the burrowing of the acarus. It is common to find a vesicle in the course of the cuniculus or closely adjoining, and frequently we are led by the presence of the vesicle to seek for the furrow and tunnel just described.

The cuniculus of the acarus is usually found in the more protected parts of the hand, and where the cuticle has a medium thickness ; for example, and first, between the fingers, along the sides of the fingers, then along the ulnar border of the hand, in the flexure of the wrists, and lastly, in the palm of the hand. On the wrists and in the palm of the hands the burrows usually take the course of the lines of motion, and diverge from point to point. In children the palms of the hands are more frequently selected than other parts ; and in them the cuniculi are also detected in the soles of the feet. In France and Germany the acarus is said to be found also on the penis and podex ; but we have never seen a cuniculus in either of these situations in any of the patients who have come under our care.

To obtain a specimen of an acarus, all that is needful is to raise the semi-globular dome of the extremity of the cuniculus with a needle-point, and insert the point of the needle into the hollow ; the animalcule generally clings to the needle, and may be seen attached to it when the needle is withdrawn, and may then be transferred to a slide of glass and placed under a microscope, or examined with an ordinary lens. Professor Hebra told us that his plan of securing an acarus was to pinch up a piece of the cuticle enclosing the end of the cuniculus with a pair of fine scissors and then transfer it to a slide ; he, moreover, informed us that he selected the skin of the buttock for this operation.

The acarus scabiei, under a lens of low power, has the appearance of a minute white and shining globe, and this

appearance is increased by the habit of the animal, of depressing its head and lifting its hinder or abdominal segment when it walks. Observed with a higher power, it is seen to bear a very close resemblance to a round-shaped tortoise; it has a carapax above and plastrum beneath, and from the anterior border of the carapax there project forwards a cylindrical head and two pairs of very strong legs or arms. The head and arms are encased in a reddish-brown chytine, and it is this chytinous case that gives the appearance of a dark crescent to the front segment of the animal when seen through the transparent dome at the end of its cuniculus. On the head are several pairs of short hairs; on the back, numerous short spines, which project backwards, and on the arms, and sides of the carapax, also several pairs of long hairs; but the longest hairs are directed backwards from the posterior segment of the carapax; the longest of all being derived from the posterior legs. Viewed upon its under side, which is flatter than the carapax or dorsum, the head is seen to be provided with strong jaws; the four anterior legs are found to be jointed and very strong, and disposed like the forelegs of the mole, while the four hinder legs are weak and diminutive and scarcely reach to the border of the abdomen. All the legs are besides furnished with a fistulous tarsus, and a fan-shaped and lobulated foot, provided with suckers like the foot of the house fly.

The construction of the animal is adapted to its habits of burrowing and onward progression; and its retreat from its burrow can only be effected by turning completely round. It is this necessity which very probably gives the varicose or beaded appearance to the tunnel of the cuniculus. Naturalists have recently discovered a difference between the sexes of the animal; the male is somewhat smaller than the female, and is adapted to a more active locomotion. He is accredited with the habit of roving about on the surface of the cuticle, while the female lives at home in her burrow, depositing

and protecting her eggs. Their food would seem to be the softer and more vitalized deeper layers of the cuticle, the rete mucosum. The largest acarus that we have seen measured about $\frac{1}{80}$ of an inch in length by about $\frac{1}{100}$ of an inch in breadth, and was therefore not far removed from the circular form. The ova are oval in shape, and are produced in considerable numbers.

The pruritus of scabies is somewhat different from that of other pruriginous complaints; it is a kind of tickling itching, and the rubbing and scratching employed to relieve it are said to be pleasurable. King James I. has the credit of having declared that none but kings and princes should have the itch, for the sensation of scratching was so delightful.

The itching in scabies seems to depend upon the operations of the acarus, and subsides when the little creature takes its rest; it is most troublesome when the patient is warmed by exercise, and especially when the body is heated by the warmth of bed-coverings. This fact renders it probable that the operations of the acarus are carried on chiefly during the night: by night, and when the patient is in bed, it is supposed to quit its burrow and wander in search of more suitable accommodation; and this is the period also, when it is most easily transferred from one person to another: hence scabies is more certainly acquired by sleeping with an infected person than in any other way.

Scabies is one of the very few contagious diseases; it is the only one that is so in the group of eczematous affections; and it is contagious, simply by the transfer of an acarus or some of its ova from one person to another. Sometimes the transfer is direct, as in sleeping with an infected person; sometimes it is indirect, when it passes from one individual to another through the agency of bed-clothes or body-clothes, through linen sent home from the wash, through the handling of objects belonging to a scabious person, or through using the same closet.

The *varieties* of manifestation of scabies, we have stated

to depend upon the constitution or temperament or age of the patient, and not upon any difference in the disease itself, or in its cause. There are consequently no real varieties of scabies. Willan and Bateman, however, describe four varieties of the disease, founded on the popular "epithets of *rank, watery, pocky, and scorbutic* itch," under the names of "*papuliformis, lymphatica, purulenta, and cachectica.*" In the first of these forms we recognize the dry pimples of lichen ; in the second, the vesicles of eczema ; in the third, simple superficial pustules ; while the fourth is intended to include those not unfrequent cases in which all the forms, namely, erythema, *papulæ, vesiculæ, pustulæ, and squamæ*, are present together.

When all these forms of eruption are present together, the *papulæ* are found most abundantly on the back of the hands, on the forearms and flexure of the elbows, on the abdomen, and on the inner side of the thighs. The *vesiculæ* are chiefly met with between the fingers, along the ulnar side of the hands, in front of the wrists, and on the back of the hands ; in the last-mentioned situation the vesicles are minute and semi-globular, while between the fingers they are mostly conical. Sometimes several vesicles become confluent, and when broken, give out an oozing of a viscous serous lymph ; and occasionally about the wrists there are larger vesicles, in fact *bullulæ*, or small *phlyctenæ*. *Pustulæ*, when they occur, are generally developed on the back or palm of the hands. The assemblage of all these forms is most commonly observed in young children ; in whom is also seen, at the same time, a hot and damp state of the hands and feet from perspiration. In the vesicular or lymphatic itch there is also, not uncommonly, a slight degree of oedematous swelling of the back of the hands.

It may seem remarkable that so purely local a cause as the presence of a minute animalcule in the cuticle in simple proximity with the sentient skin, should be capable of giving rise to a reflex irritation that is manifested in the

most distant parts of the body ; such, however, we believe to be the case ; and the known physiological phenomena of the nervous system warrant the conclusion. We have in our mind the following example : a gentleman complained of pruritus of the skin between the little and ring finger of the right hand ; we looked at it and detected the cuniculus of an acarus ; there seemed to be but one ; he had no eruption on any other part of the hand, but he complained of a few pruritic pimples situated on the upper part of the same arm, some on the right flank, and some on the upper part of the right thigh. There was no eruption whatever on the left hand or left side of the body. Being a friend, I suggested to him the experiment of rubbing a little sulphur ointment into the site of the cuniculus between the fingers, and to do nothing for the rest of the eruption ; he did so, and the general as well as the local irritation was immediately allayed.

We have remarked that in some countries, and it may happen also in this country, if the animalculæ be abundant, the acarus has been seen in the thin cuticle of the prepuce, and on the podex. It is supposed to reach these situations from the hands ; the eruption common on the buttocks of children is also supposed to be derived from the hands of the nurse ; again, on the mammæ of nursing females, the agent of transmission is believed to be the hands of the infant.

DIAGNOSIS.—The student must familiarize himself with the discovery of the acarus, as upon this, and this alone, the diagnosis of scabies depends. A roughness and pimply eruption between the fingers, and upon the wrists, is always suspicious ; but suspicion does not become certainty until we discover the cuniculus and its inmate. Not even does the presence of a crop of vesicles, conical or otherwise, and oozing a viscous and colourless lymph, afford proof of scabies without the animalcule. If we have before us a pimply eruption upon the forearms, the flexures of the arms, the abdomen, and the inside of the thighs, the case is in all pro-

bability scabies ; but without the proof afforded by the acarus we are unable to say more than that the disease is lichen pruriginosus, and to all appearance a scabies.

It is important to remember that the acarus scabiei is capable of setting up an eruption of the skin at a distance from the part where the irritation really exists, and that the eruption so set up may be greater or less according to the susceptibility of the patient, and that it will be greatest of all in a person of eczematous diathesis ; on the other hand, it is to be noted that on the withdrawal of the cause of irritation, that is, upon the destruction of the acarus, the eruption does not immediately subside, but in different constitutions may linger for a longer or shorter space of time. The eruption under these circumstances may be termed *secondary* ; and the secondary eruption of scabies is the subject of much perplexity, both of diagnosis and treatment.

It is a fact, that although the cause be removed, the irritation of the skin excited by that cause may be perpetuated, and the eruption continue for several weeks or months as an independent disorder, as, in fact, a lichen pruriginosus ; and the eruption is all the more likely to continue, and to be aggravated, by the use and persistence in the use of sulphur, which is the best and most reliable remedy for scabies. Under these circumstances, the diagnosis of scabies, the acarus, becomes doubly important, and in the absence of all indications of the presence of the animalcule in the hands, we must consider the case to be, not a scabies, but a lichen pruriginosus, and treat it accordingly : by treating it as a scabies we prolong it indefinitely ; by treating it as a lichen, we cure it with an equal degree of certainty.

CAUSE.—The cause of scabies is the presence of an animalcule, the acarus scabiei, in the cuticle ; it is quite independent of any disturbance of general health ; and the animalcule in general thrives better in the skin of persons

enjoying moderate health, and especially of children, than it does in that of the squalid, the emaciated, and the diseased. The cause of the *secondary eruption* is, however, constitutional, and must be referred to those causes that give rise to eczema and lichen in general.

PROGNOSIS.—The eruption is harmless, and removable more or less easily without trespass upon the powers of the constitution. Any strain upon the general health must, therefore, be referred to the presence of the eczematous diathesis, and irritability of the nervous system, and not to that of the *acarus*.

TREATMENT.—The treatment of scabies is expressed in a single word,—sulphur. Sulphur must be administered internally, and used externally, but with discretion. Our plan is as follows:—We wash the entire skin, once or twice daily, with sulphur soap, the hands more frequently; we rub the simple sulphur ointment into the hands and wrists night and morning; at night we leave it on the skin, and recommend the patient to wear gloves; in the morning, after the soap ablution, a smaller quantity of ointment suffices, which we allow to be wiped away after having been well rubbed in; and any remains of greasiness removed with sulphur powder. This plan we continue for a week, and then stop; but we recommend the continuance of the soap ablution for a second week.

The lichenous eruption on the rest of the body we sponge with lotions of hydrocyanic acid in emulsion of bitter almonds; with emulsion of bitter almonds, containing the bichloride of mercury, one grain to the ounce; or we anoint with the benzoated ointment of oxide of zinc, with spirits of wine or spirits of camphor. And if the sulphur soap ablutions be at all irritating to the skin, we substitute the juniper-tar soap.

Internally, we prescribe a powder, containing sublimed sulphur, bitartrate of potash and white sugar, of each ten grains (for a child, gr. v.), night and morning; and with

the simple object of creating an atmosphere of sulphur, both internally and externally, about the patient, and presenting to the acarus a vapour destructive of its life.

Moreover, as precautions when simple and easy of application cannot be over much multiplied, we recommend the sprinkling of sulphur powder in the bed of the patient, and its dispersion amongst his clothes. Strong odours, also, are destructive of the acarus, and these, particularly the essential oil of camomile, we combine with the ointment. There are many other remedies recommended for scabies, but none so good or so efficient.

Reviewing our plan as above detailed, it will be observed that we advise its continuance for a week, whereas the acari are often destroyed by a second inunction; but it must be remembered that the ova remain, and if the sulphur treatment were too soon suspended, some of the ova might escape, and the disease, in a short time, be renewed. Again, the treatment neither requires isolation, nor suspension of the ordinary intercourse of life, and therefore may be tolerated for a longer period than a more violent method, or than the older treatment, which prescribed inunction of the whole body with the compound sulphur ointment night and morning, and bed between blankets for several days or for a week.

Sometimes a sulphur-vapour bath, or a lotion of the pentsulphide of calcium, may be preferred to the inunction; but we know of no plan of treatment better suited to the purpose than that which we have already detailed. This treatment is founded on the presumption that the acari are limited in their presence to the hands; or, in children, the feet as well as the hands; but if it be ascertained that they are also present in other parts, then the sulphur inunction must be extended equally to them.

The secondary eruption of scabies, the lichen pruriginosus, must be treated on the same principle as lichen in general: antipruriginous, or gently stimulating lotions; the benzoated

ointment of oxide of zinc ; and, internally, laxatives and mild tonics, with the mineral acids.

GUTTA ROSACEA.

GUTTA ROSACEA has heretofore been confounded with acne, under the name of acne rosacea ; we shall endeavour to show that the two diseases are essentially different. Gutta rosacea is the red and pimply face of the mid-period of life, a disease of inflammatory congestion, and depending on constitutional causes ; acne is a disorder of secretion, of nutrition, of growth, and an accompaniment of youth and the development of the cutaneous tissues.

Gutta* rosacea is an inflammatory congestion of the skin of the face, accompanied with erythematous patches, red spots, papulæ, sometimes small and sometimes large, pustules, and tubercular thickening of the integument. It is chronic and progressive in its course, and the greater or less development of its pathological signs constitutes its varieties ; for example, gutta rosacea erythematosa, papulosa, tuberculosa, and pustulosa.

Gutta rosacea makes its beginning with simple flushes of the face, which are transient ; they are produced under the influence of the stimulus of food, commonly at dinner, and sometimes of emotion. These flushes, at first occasional, soon become habitual, and, frequently repeated, they give rise to a permanent distension of the vascular plexus of the skin, and the red face is established. This is the erythematous stage of the affection, and in conformity with the degree of congestion and the energy of the circulating power, we find certain obvious modifications. At first, and in persons of firm tissue and healthy muscular system, the cutaneous circulation is vigorous, and the colour of the skin the

* A drop or spot.

scarlet tint of arterial blood ; after a time, months probably or years, or in a person possessing soft tissues and weakly muscular power, the circulation is languid, the blood undergoes its venous transformation in the skin, and the tint of the redness is changed to crimson, purplish, or roseate, and occasionally also becomes livid. It is the frequency of this alteration of colour that has suggested the term "*rosacea*," applied to the disorder ; but it will be seen that the roseate hue is by no means a necessary accompaniment of the affection, and, when it exists, represents an advanced stage of the morbid process.

We have previously directed attention to the deep circulation of the skin, the follicular circulation, as compared with the surface circulation ; this difference is conspicuous in every congestion of the skin, and is sometimes very striking in *gutta rosacea*. Congestion of the follicular circulation is known by a dotted or punctated appearance in the skin (*gutta rosacea punctata*), each dot corresponding with a separate follicle ; and the presence of these dots is the indication of a commencing development of *papulæ* (*gutta rosacea papulosa*), the *papulæ* having the same origin and structure as those of *eczema* or *lichen*. An accumulation of *papulæ* at some one point produces the more extensive rising known as a tubercle (*gutta rosacea tuberculosa*), and the formation of pus in the summit of a papule or tubercle constitutes the pustular form of the disease, or *gutta rosacea pustulosa*.

Gutta rosacea is attended with sensations of heat, burning, itching, and, in the pustular form, lancination and throbbing. When the pimples are rubbed or scratched, a little serous lymph oozes from their summit and forms a small crust ; but there is never the amount of exudation which exists in *eczema*, and, as a consequence, never the same thickness of crust.

Gutta rosacea, in a chronic form, necessarily occasions considerable thickening of the skin of the face, and in

aggravated cases produces those unsightly blotches and tubercles which have been noted by Shakespeare :—

“His face is all bubukles and whelks and knobs, and flames
of fire.”

From its occasional association with habits of intemperance, it has been termed “Bacchia,” and the tubercles “grog-blossoms” and “carbuncles.” And when the nose is the seat of the disease, the whole organ is swollen, and the end of the nose thickened and hypertrophied, marked by large superficial veins, often very blue or livid, and studded with yellow pustules and ugly crusts.

The characters already described bring gutta rosacea into the category of eczematous affections ; namely, the kind of eruption ; its tendency to exudation, although in a slight degree ; its development in the form of a rash or an eruption ; and we may add, its dependence on constitutional causes. We have frequently seen it associated with eczema existing in other parts of the body, and in persons possessing the eczematous diathesis. It is essentially a chronic affection, lasting, when not restrained by treatment, for years. It has no constitutional symptoms of its own, and is obviously non-contagious.

It is more frequent than would be imagined, occurring in private practice once at least in every ten patients : it is nearly six times more frequent in the female than in the male, and is commoner in the unmarried female than in the married.*

DIAGNOSIS. — Gutta rosacea may be mistaken for an eczema erythematosum and papulosum, for a lichen, or for an impetigo ; but the general history of the affection will determine its identity ; in a practical point of view, the

* *Vide* An Enquiry into the relative Frequency, the Duration and Cause of Diseases of the Skin.

blunder is not of much consequence, for the treatment is the same. With regard to acne, it is to be borne in mind that the latter disorder is one of torpid glandular action, accumulation of altered sebaceous substance in the gland and its follicle, and inflammation resulting from the mechanical pressure and irritation caused by the impacted matter. Moreover, it is commonly associated with other indications of disordered function of the sebaceous glands and follicles, and occurs in young persons, beginning at the age of puberty. Whereas gutta rosacea is a disease of middle life, has none of the sebaceous complications referred to above, is primary instead of secondary in its inflammatory congestion, and is the consequence of general ailment and disorder of the economy.

CAUSE.—The cause of gutta rosacea is similar to that of the eczematous affections already enumerated, namely, *debility*; debility, which is nutritive, assimilative, nervous, or local, or all, in greater or less proportion, combined. The eruption is excited by reflex irritation, originating in the nervous plexuses of the stomach and organs of digestion, and also in the reproductive and uterine system. And the remote predisposing causes are as follows:—uterine, reproductive, and puerperal derangements; deranged menstruation; languid vital power; anxiety, fatigue and affliction; loss of rest; deranged digestion; abuse of alcoholic drinks; ungenial climate; errors of air, exercise, and clothing; constitutional and organic disease; rheumatic diathesis; hæmorrhage; eruptive fevers; rapid growth; sexual excess; excessive mental and physical labour; deficient food; adult vaccination; syphilitic cachexia, &c. A common local cause is neglect of the use of soap in the daily matinal ablution.

PROGNOSIS.—Not grave; but as the local disease implies a derangement of general health, in which digestion and nutrition, as well as physical comfort and mental ease are concerned, it cannot too soon be relieved; and were there wanting an additional reason for prompt treatment, it might

be found in the fact, that the disease is all the more difficult of removal when thoroughly confirmed by time and neglect. And this is the more apt to be the case from the fact, that gutta rosacea is too frequently looked upon as a deformity rather than as a disease, and as affecting vanity rather than life.

TREATMENT.—There is no disease more amenable to treatment than is gutta rosacea, when properly understood. As a disease of debility, the first indication is to improve the tone of the system and restore the general health; as a preliminary to the tonic course, the digestive organs will require to be regulated, the secretions to be set right; and when the ordinary tonics, bitters, mineral acids, and chalybeates, have exhausted their good effects, we may have recourse to the unfailing specific influence of arsenic.

The *local* treatment should be mildly stimulant and soothing, and afterwards more stimulating. Our plan is to prescribe daily, and sometimes twice daily, washing with cold water and the juniper-tar soap. If the local irritation be increased by these means, we omit the evening ablution, and apply the benzoated oxide of zinc ointment, or smear the ointment gently on the face after the evening ablution. Then, if the congestion of the skin be improved by this process, we follow it up by a stronger stimulant, the compound hypochloride of sulphur ointment. The ointment should be rubbed into the pimples with moderate friction at bedtime, left on the skin during the night, and washed off in the morning by the usual ablution with the juniper-tar soap and cold water. This plan is unfailing in success; but if it be found too severe, we modify it accordingly, and have recourse to milder cutaneous stimulants, such as the bichloride of mercury in emulsion of bitter almonds.

CHAPTER IV.

ERYTHEMATOUS AFFECTIONS.

THE Exanthemata of Willan are naturally divisible into two groups,—the eruptive fevers, namely, rubeola, scarlatina, and variola, of which we treat in our tenth group, under the designation of Zymotic affections; and those superficial congestions of the skin which take erythema as their type,—the erythematous affections, and form the subject of our present chapter. The exanthemata and erythemata are the *efflorescences* and *rashes* of the skin; the former term being most appropriately rendered by efflorescence, a blossoming out like flowers, which the little corymbi of rubeola might be taken very fairly to represent; while the latter term, erythemata, derived from *ερυθαίνειν*, to redden, may be equally well rendered by the word rash, or inflammatory blush.

The definition of exanthema given by Willan is, with a slight modification, applicable also to erythema; namely, “superficial red patches, variously figured, and diffused irregularly over the body, leaving interstices of a natural colour, and terminating in cuticular exfoliations.” The modification relates to the words “leaving interstices of a natural colour:” these words have in view the general efflorescence of rubeola and scarlatina, and also of a member of the present group, namely, roseola; the rest of the erythemata being local, and requiring no such limitation.

The leading distinction between the erythemata and the eczemata is the difference of relative importance of the local and constitutional disorder in the two kinds of affec-

tion. In eczemata the principal interest attaches to the local affection ; in erythemata the constitutional disorder is of most consequence, the local manifestation being often a mere symptom of derangement of the stomach and digestive organs, and following, like the eruptive fevers, a more or less regular order of development. Thus, in several of the forms of erythema, in erysipelas, and in roseola, the beginning of the attack is announced by nausea, prostration of power, and headache : these symptoms are followed by fever ; on the second or third day of the general illness the rash makes its appearance, goes on increasing for four or five days, and then gradually declines. At the outbreak of the rash there is commonly a marked relief to the constitutional symptoms, and in some instances the latter quickly disappear. Hence the relation between the local affection and the constitutional affection is very manifest.

The diseases included in the present group are :—

Erythema	|	Urticaria
Erysipelas	|	Roseola

ERYTHEMA.

ERYTHEMA, or inflammatory blush, is a superficial inflammation of the skin, more or less partial in its distribution, occurring in spots and patches of various size, sometimes diffused and sometimes circumscribed, and attended with more or less swelling and pruritus. The redness is sometimes scarlet, sometimes crimson and purplish ; and on dispersing, is followed by a bluish and yellowish stain, like that of a bruise. The resolution of the inflammation is succeeded by exfoliation of the cuticle.

Erythema is commonly symptomatic of some disturbance of the digestive, the nutritive, or the uterine functions, or its symptoms are secondary and limited to a slight degree

of irritative fever. Its duration varies from a few days to several weeks, and it is not contagious.

The *varieties* of erythema are as follows :—

Erythema fugax	Erythema marginatum
„ læve	„ tuberculatum
„ circinatum	„ nodosum

ERYTHEMA FUGAX is chiefly remarkable for its evanescence ; it occurs in the form of patches, which are red, hot, itchy, and slightly swollen ; sometimes successive and sometimes changing their place as though by metastasis.

Bateman compares the redness of the patches to that produced by pressure, and remarks upon its association with various febrile affections. He also mentions the opinion of Hippocrates that it denoted a tedious and dangerous disease. Our own experience associates it with disorders of the mucous membrane of the digestive, secreting, and uterine organs, and especially the latter.

Erythema fugax is sometimes more remarkable for a tendency to swell (*erythema tumescens*) than for its redness, and this form of the disorder is often very annoying. A little itching is felt in the part attacked ; it swells quickly, and in the course of an hour has attained a considerable size. The swelling lasts for a few hours, and subsides almost as rapidly as it arose. We know a military officer who was the subject of this curious malady. The swelling would take place so suddenly that he was sometimes seized with it while on duty ; occasionally it affected the integument of the eyelids ; his eyes were quickly closed, and it was necessary to lead him to his quarters completely blinded. But a more painful case was that of a clergyman, in whom the disorder attacked the lips and sometimes the tongue : when it occurred in the latter situation, he was once or twice nearly suffocated.

Erythema fugax is also associated with another curious

affection, namely, vicarious menstruation (*erythema menstruale*). A sudden flush with a little swelling appears upon some part of the skin, generally the face; a sanguineous exudation takes place, which lasts for a few days and then subsides. The exudation is not continuous throughout the whole period, but intermittent, and during the intermission the skin has the appearance of having been scorched. We have seen three well-marked examples of this affection: the patients were young, and suffering from amenorrhœa; they were also hysterical.

ERYTHEMA LÆVE, VEL ŒDEMATOSUM, is a local form of erythema, depending upon the inward pressure of œdema of the subcutaneous cellular tissue. It occurs for the most part in the lower extremities, or in any depending part of the body. Sometimes it is met with in the eyelids, and is mistaken for erysipelas, and not unfrequently in the lower limbs. The cuticle breaks up into a series of retiform lines; the exposed cutis exudes a serous secretion; there is considerable pruritus, and the case becomes transformed into one of eczema. Erythema læve is a frequent accompaniment of anasarca, in which case the surface of the skin is red and shining.

Another form of erythema, originating in a local cause, namely, friction; such as the friction of ill-fitting clothes, the friction of riding on horseback, the friction of one part of the body against another, or of two folds of the skin, as in fat and flabby persons, and in infants whose skin is naturally sensitive, is *erythema intertrigo*,* and the evil is increased if the integument be in a moistened state, as by the condensation of perspiration or the flow of secretions over the part. In lymphatic constitutions the erythema is apt to be accompanied with exudation, in the first place of a serous fluid, and subsequently of a muco-purulent secretion. The presence of exudation, however, transfers the

* Intertrigo, a chafe-gall, or gall from chafing; a fret.

affection from the erythematous to the eczematous group, and the case becomes one of *eczema mucosum*. The erythema which is apt to occur in bedridden persons, and which precedes bed-sores, is termed by Sauvages *erythema paratrimma*, and by Plenck, *erythema a decubitu*.

The term erythema is also applied to one stage of burn, and also to the first stage of frost-bite; the first being called *erythema ab igne*, or *ambustio erythematos*; the latter, *erythema a gelu*, or *pernio erythematos*.

ERYTHEMA CIRCINATUM begins in the form of circular and slightly raised patches, which increase by the circumference and fade in the centre, forming rings of various size, with borders of various breadth, being sometimes narrow and sometimes broad. The skin over which the inflammation has passed throws off its cuticle in furfuraceous desquamation, and the rings, meeting and crossing in their course, give rise to a variety of irregular figures, consisting of broken segments of circles. This form of eruption is often met with in the course of ailments accompanied with perspiration, and when the patients have been kept hotly covered up with bedclothes, as in rheumatic fever. It is also seen, in the spring season of the year, on the lower extremities of young persons, and also associated with rheumatism.

ERYTHEMA MARGINATUM is a chronic form of erythema circinatum; the border is more raised, particularly at the periphery; the congestion is deeper tinted, often crimson or purple, and the rings broken and irregular. They are chiefly met with in elderly persons, on the extremities and loins, and, according to Willan and Bateman, are associated with some internal disorder, their occurrence being deemed an unfavourable sign.

ERYTHEMA PAPULATUM ET TUBERCULATUM.—The two forms papulatum and tuberculatum only differ in size of the eruption, the symptoms being the same; and not unfrequently they are intermingled in the same person, or on the upper

extremities assume the smaller or papulous form, and on the lower extremities the larger or tuberos form. Both commence with itching and tingling, which is increased by the stimulus of meals and heat of bed; both are slightly raised at their first appearance, and subside to the level of the skin in a few days; and both are brightly red at first, become purplish by degrees, and fade away into a greenish and yellow stain. The smaller kind are met with on the face and neck, the chest, the upper extremities, and particularly in the neighbourhood of the joints and upon the back of the hands; and the larger kind are chiefly found upon the lower extremities and around the knees and ankles. Both are associated with disorder of the digestive organs, and the latter with disordered menstrual function. The tuberos kind is commonly met with in female servants who have been recently introduced into London kitchens from the country: the eruption is tender to the touch, and frequently accompanied with feverish symptoms and rheumatic pains.

ERYTHEMA NODOSUM.—Erythema nodosum only differs from the preceding in a larger development of the inflamed spots, and a somewhat more violent attack of disorder of the digestive organs and feverishness, by which it is preceded. The patches are oval in form; are hot, painful, and tender to the touch, and appear chiefly on the lower limbs, corresponding by their long diameter with the vertical axis of the limb. Occasionally, however, they are disposed transversely, and we have seen two patches so placed as to form a kind of bracelet just above the ankle. They are hard to the touch at first, and sometimes seem to sink deeply into the tissues of the limb, involving even the muscles; in a few days they become softer, and in eight or ten days subside and disappear. At the commencement they are brightly red; as they attain maturity they become purplish, and at their decline have the green and yellow tinge of a bruise. In prominence they rise gradually to

the centre, and are commonly associated with considerable derangement of the digestive organs, and frequently with rheumatism.

DIAGNOSIS.—Redness, bright at first and subsequently becoming purplish; slight elevation, sometimes with a tendency to sudden swelling; itching and tingling; and very slight, if any, exfoliation of the cuticle, unlike the decided desquamation of the eczematous affections; these are the signs which distinguish erythema from other disorders of the skin. Erythema papulatum bears some resemblance to urticaria in size of prominence, in situation, and in the sensation of tingling pruritus; but there the likeness ceases; one is permanent for several days, the other, maintained only by muscular spasm, is lost in an hour; moreover, the papules of erythema are red and the wheals of urticaria white and bloodless.

CAUSE.—The cause of erythema is debility, general and local; the general forms being assimilative, nutritive, and nervous; and the predisposing causes, derangement of digestion, derangement of uterine function, variations of climate, errors of air and exercise, alternation of seasons, rheumatic diathesis, and hereditary diathesis. In a case of chronic erythema of the face, the cause was stimulation by the heat of the sun.

PROGNOSIS.—Erythema is rarely grave; but as it indicates a state of disorder of the economy, the health should be restored as quickly as possible.

TREATMENT.—As the most frequent of the predisposing causes of erythema are those which conduce to assimilative debility, the digestive organs and the uterine system call for our especial attention. Mild purgatives, salines, and subsequently bitters with the mineral acids, will be found to be the proper remedies in the majority of cases. Where the function of the stomach is principally at fault, the trisnitate of bismuth, with liquor cinchonæ and in-

fusion of orange-peel, will be useful; or the more decided tonics, quinine with sulphuric acid, or quinine with iron and citric acid. If the cutaneous disorder be associated with rheumatism, the iodide of potassium may be advantageously combined with the salines, or bitters, according to the stage of the affection.

Locally, the benzoated ointment of oxide of zinc will be found useful in the more irritable forms; and where there is œdema, an elastic cotton bandage, carefully applied. In erythema papulosum, tuberosum, and nodosum, a spirit lotion may be used, or a lotion or cerate of Goulard's extract. In erythema intertrigo and paratrimma, the parts should be washed with the juniper-tar soap, and afterwards dressed with the benzoated ointment of oxide of zinc, combined with spirits of camphor. In erythema paratrimma especially, the inflamed part should be pencilled with a liniment of white of egg and spirits of wine, and afterwards dressed with the unguentum resinæ flavæ.

For chilblains, in their erythematous state, the treatment is friction, with moderately stimulant liniments; such as the linimentum camphoræ, with chloroform; soap liniment and oil of cajeput; or a liniment composed of the contents of one egg, one ounce of spirits of turpentine, and one ounce of distilled vinegar, well shaken together.

ERYSIPELAS.

ERYSIPELAS, derived from *ερυθρος*, *rubor*, and *πελλα*, *cutis*, is a diffused inflammation of the skin and subcutaneous cellular tissue of a part of the body, preceded and accompanied by derangement of the digestive organs, and more or less severe fever.

The inflammation of the skin is indicated by redness, swelling, burning heat and tingling, and a sense of

tension and pressure, and is remarkable for a disposition to spread ; sometimes creeping onwards upon the neighbouring skin, and subsiding on the part first attacked ; and sometimes vanishing suddenly on one spot to appear upon another at some distance. It is this ambulant or wandering character, and the tendency to sudden disappearance, that has gained for two of its forms the names of *erraticum* and *metastaticum*.

The swelling is sometimes very moderate ; at other times there is a degree of infiltration into the subcutaneous cellular tissue amounting to œdema, and with the œdema an interstitial infiltration into the corium, producing thickening and coarseness of the skin. An advanced degree of this serous infiltration gives rise to the development on the inflamed surface of vesicles constituting *erysipelas miliare* ; while larger vesicles or bullæ distinguish the forms known as *erysipelas phlyctenodes*, or *bullosum*, that which is marked by simple œdema being *erysipelas œdematosum*.

Erysipelas has a tendency to invade by preference certain regions of the body ; for example, the head and face ; next in frequency it is met with on the limbs ; and in newly-born infants it is apt to attack the umbilicus and abdomen. It also manifests a remarkable difference in respect of depth, the forms heretofore referred to being superficial, while one form is distinguished for its invasion of the deep structures of the body as well as the skin, namely, *erysipelas phlegmonodes*. Another diversity in the forms of erysipelas has reference to its cause, the ordinary cause being constitutional, while a very dangerous form, *traumatic erysipelas*, has its origin in wounds, as in the erysipelas which comes on after surgical operations.

Erysipelas generally runs a course of ten days, to a fortnight or three weeks ; the local inflammation commonly makes its appearance on the second or third day of the

constitutional disturbance, goes on increasing for four or five days longer, and begins to decline on the eighth or ninth day. In erysipelas phlyctenodes the bullæ are formed on the fourth or fifth day, each bulla having an existence of twenty-four hours before it bursts, and erysipelas capitis reaches its height about the fourth or fifth day, and its decline at about the seventh or eighth.

The termination of erysipelas usually takes place by resolution: the swelling subsides, the redness disappears, the tenderness and pain cease, and the cuticle is separated by desquamation. The thin scabs formed by the desiccation of the cuticle covering the broken vesicles also desquamate in a few days.

The *constitutional symptoms* of erysipelas are those of invasion, course, and decline. The symptoms of *invasion* are: chills or rigors, with flushes of heat; lassitude; pains in the back and limbs; headache and drowsiness; thirst; loss of appetite; white, coated tongue; bitterness of mouth; nausea; often vomiting; weight and oppression at the epigastrium; constipation; quick, and sometimes hard pulse, and dry skin. These symptoms are mitigated upon the appearance of the inflammation of the skin, and take on more or less of a nervous character; the pulse becomes soft and quick; the tongue is brown and dry, and there is more or less delirium. On the occurrence of the decline of the local inflammation, the bad symptoms either subside by degrees, and a diarrhœa or lithic acid sediment shows a return of normal energy of the organic functions; or the patient falls into a state of coma from effusion between the membranes of the brain, or, asthenia, from exhaustion; and gradually succumbs.

Not unfrequently, at the close of the fever, there is some degree of hæmorrhage from the mucous membrane, sometimes from the pulmonary or alimentary mucous membrane, and sometimes from the womb.

The *varieties* of erysipelas may be arranged in two groups, general and local, as follows:—

GENERAL VARIETIES.

Erysipelas erraticum	Erysipelas phlyctenodes
„ metastaticum	„ œdematodes
„ miliare	„ phlegmonodes

LOCAL VARIETIES.

Erysipelas faciei	Erysipelas mammæ
„ capitis	„ umbilicale

ERYSIPELAS ERRATICUM is the erratic form of the disease. It is rarely accompanied with much swelling, or with the development of vesicles. It occurs most frequently upon the head and face.

ERYSIPELAS METASTATICUM.—Metastasis is one of the dreaded phenomena of erysipelas, and the especial danger that is feared is metastasis or transfer of the inflammation from the skin to the brain. This danger is, of course, very much increased when the seat of the disease is the head or face. The true explanation of metastasis is that which has already been discussed in connection with the probabilities of repercussion of eczema; a *causa morbi* exists in the economy, and some organ will be the sufferer; so long as the vital power is able to exert a conservative control, the disease will run its normal course in the organ already attacked, whatever it may be; but if the vital power be very much weakened, then no human caution or contrivance can prevent the transference of the *causa morbi* from one organ to another, without any rational explanation being possible. The metastasis of erysipelas, says Dr. Watson, is rare; “I do not recollect to have seen it. But the extension of the inflammation, the supervention of delirium and coma, while the external inflammation continues, is of common occurrence.”

ERYSIPELAS MILIARE ET PHLYCTENODES represent two degrees of effusion beneath the cuticle of the serous fluid already infiltrated into the tissues of the skin. In the slighter of the two, the serum is exuded in small quantity, and gives rise to vesicles, of the size of millet-seeds; in the other, the quantity of serum is greater, and the vesicles assume the character of phlyctenæ, or bullæ. The bullæ are commonly developed on the fourth or fifth day of the fever, and go on enlarging for twenty-four hours, when they usually burst. Their contents are sometimes pale and watery, and sometimes opalescent; more frequently they are amber-coloured, and sometimes, when there is a tendency to dyscrasis of the tissues, they are purple, from intermixture of the colouring principle of the blood with the serum. When the bullæ burst, their bases become covered with thin scabs, which, at first yellow, soon become brownish, and almost black.

ERYSIPELAS ŒDEMATODES is a modification, due to the accumulation of serous fluid in the subcutaneous cellular tissue; it occurs most frequently in the lower extremities, and sometimes in the organs of generation. When the inflammation subsides, the fluid is gradually absorbed.

ERYSIPELAS PHLEGMONODES is more deeply seated, and more severe in all its phenomena, than simple erysipelas. The subcutaneous cellular tissue, the superficial and deep fascia, and the intermuscular fasciæ, are all involved in the inflammation, which instead of being circumscribed like ordinary phlegmon, puts on the true erysipelatous character of spreading on all sides, and involving a considerable extent of tissue in destruction, and sometimes the greater part of a limb. It occurs most frequently in the extremities, but may attack any part of the skin; and runs on to suppuration, and commonly to gangrene of the cellular tissue and fasciæ.

The *local* signs of phlegmonous erysipelas are, redness, swelling, hardness, extreme tenderness, and an acute burn-

ing pain; when, at about the fifth or sixth day, suppuration is established, the pain is throbbing, an obscure fluctuation is felt, and pressure with the hand communicates a boggy sensation. When sphacelus is set up, the colour of the skin changes to purple, or assumes a livid tint. When the case is disposed to terminate in resolution, an amelioration of the symptoms takes place at the fifth or sixth day.

The *constitutional* symptoms of erysipelas phlegmonodes are the same as those of erysipelas simplex, but more severe; delirium is not uncommon, the tongue is dry and brown, and there are sometimes diarrhœa and profuse perspirations.

ERYSIPELAS FACIEI is a serious form of the affection, as it involves parts of high organization, and closely associated with the nervous system and brain. The inflammation begins at the side of the nose, and spreads rapidly over the whole face, swelling the features to such an extent as to be barely recognizable. The eyelids, the ears, and the lips, are greatly tumefied, and the inflammation is apt to extend to the conjunctiva, and to the mucous membrane of the nose, mouth, and throat, often involving the parotid and submaxillary glands, and occasioning suppuration among the deep tissues of the neck. The constitutional symptoms are very severe: there is violent headache, sleeplessness, restlessness, delirium, and finally, coma. Sometimes death results from exhaustion or asthenia, and sometimes from apnœa, in consequence of obstruction of the glottis by infiltration of the mucous membrane.

ERYSIPELAS OF THE SCALP is usually the consequence of a wound (traumatic erysipelas), and occurs in about a week or ten days from the reception of the violence: the integument is œdematous, smooth, shining, and very sensitive, and the inflammation is apt to run on to suppuration and gangrene of the cellular and fibrous tissues, and not unfrequently the inflammation is transferred to the brain.

ERYSIPELAS OF THE MAMMA is apt to assume the phlegmonoid character, in consequence of the presence of a large quantity of loose cellular tissue: suppuration takes place, with gangrene of the fibrous tissues.

ERYSIPELAS OF THE UMBILICAL REGION occurs in young infants, from mismanagement of the umbilical cord, particularly in public institutions, and under the influence of an epidemic malaria. The inflammation spreads more or less extensively over the whole of the abdomen, and frequently extends to the organs of generation.

DIAGNOSIS.—The distinguishing characters of erysipelas are, a deeper affection of the tissues than occurs in erythema, a greater amount of tumefaction, a proneness to spread, and especially the more severe constitutional symptoms. Erysipelas phlegmonodes is known by the hardness, which indicates a deep implication of tissues, a greater amount of pain, and the suppuration of the subcutaneous tissues.

CAUSE.—The previous consideration of erythema has taught us that a derangement of the digestive functions may be sufficient to excite an inflammation in the skin; so in the present instance we must have recourse to a similar explanation in some instances of erysipelas; for example, in idiopathic and traumatic erysipelas. In other cases, erysipelas seems to be referrible to malaria, and sometimes to infection and contagion, and it is apt to prevail epidemically. Puerperal fever would seem to be one of the sources of the infection of this disease, and erysipelas and puerperal fever are reciprocally transmissible. The predisposing cause is debility, and the remote predisposing causes, those conditions that tend to lower the tone of the system and the energy of the vital powers; for example, anxiety, affliction, and exhausting excesses of every kind. Some persons seem to possess an erysipelatous diathesis, and in such persons the most trivial wound, such as a scratch with

a pin or the bite of a leech, are sufficient to induce an attack.

PROGNOSIS.—Erysipelas being always serious, and often dangerous, demands the utmost care, and is generally of doubtful prognosis; and this is especially the case with some of its forms; for example, erysipelas faciei et capitis, and erysipelas phlegmonodes.

TREATMENT.—The treatment of erysipelas presents the usual two indications, constitutional and local; the first being directed towards the subjugation of the fever, the second to the relief of the local affection.

Erysipelas being essentially a disease of debility, of asthenia, and its progress being marked by that form of morbid inflammation which is termed irritability, we have to bear in mind the necessity of sustaining the vital powers, and of putting in practice a conservative plan of treatment. All that is signified in the expression "regulate the digestive organs and secretions," must be accomplished in the first instance and quickly, that no fermenting irritant may be allowed to exist in the alimentary canal, and no torpidity of operation of the liver or kidneys complicate the future progress of the case; moreover, we gain another point by this preliminary clearance of the alimentary system; we excite a derivative action, which is an important element in the treatment, while we perform artificially that which nature would otherwise neglect. Nevertheless we must not fail to keep in mind the asthenic nature of erysipelatous inflammation, and the necessity of a strictly conservative policy in its management.

The remedies the best suited to the regulation of the digestive organs and secretions, are a full dose of calomel with the compound extract of colocynth, say two to four grains of the former, with six to eight of the latter, and two of extract of hyoscyamus, followed after a lapse of twelve hours with a senna or rhubarb draught. If there be any objection to calomel, half a grain of podophyllin

may be substituted in its place. When the bowels have acted freely, the tendency to constipation which is apt to succeed the use of purgative medicines must be controlled by the daily exhibition of a mild aperient. The derivative action once established must be sustained; the digestive mucous membrane, once prompted to a natural action by remedies, must not be permitted to relapse into a sluggish state; but we must be equally cautious in avoiding any unnecessary irritation of the alimentary canal.

If the fever run high, we may find it necessary to have recourse to effervescent salines, or to use the neutral salt sulphate of magnesia as our laxative; or administer the chlorate of potash, dissolved in water or barley-water, as the daily drink. One drachm of this salt may be taken in the twenty-four hours.

But the moment the alimentary canal is pronounced to be free, we must be ready with our tonics: they should be combined with aperients, as in the combination of the sulphate of quinine with sulphate of magnesia, and they should be administered independently. We may select bitters with the mineral acids; cinchona with sulphuric acid; or the citrate of iron and quinine. But there is one tonic which, above all others, is suitable for erysipelas, in fact is declared to be specific, and, as far as our experience is concerned, is literally so; namely, the tincture of the hydrochlorate of iron.

The tincture of the sesquichloride of iron may be commenced the moment the bowels have been sufficiently relieved, and may be continued through all the stages and variations of the complaint. It is given in simple dilution with water, in doses of 20 minims, every two hours until the fever is subdued. Dr. Balfour, who recommends this plan of treatment strongly, advises that it should be administered with regularity, so as to saturate the system as speedily as possible, and he urges that it is only at the point of saturation that the remedy exerts its great curative

power. He finds it remove pain, lessen the heart's action, clean the tongue, and act as a diuretic ; it is admissible, he says, in every stage of the fever, even in high delirium ; it never produces headache ; it arrests suppuration in phlegmonous erysipelas, and brings about a cure in less than a week. For infants he prescribes doses of two minims, and for intermediate ages a relative increase.

Ammonia is a favourite remedy in erysipelas with some practitioners, in all its forms ; the citrate and acetate as an antiphlogistic remedy, and the sesquicarbonate as a specific. The latter may be administered in doses of five grains every two or three hours.

Sedatives are also valuable when great irritability prevails, and when they really act as sedatives, and not, as too frequently happens, as excitants of the brain and stimulants. Aconite and belladonna have gained a reputation in erysipelas, and so also have hyoscyamus, morphia, and the liquor opii sedativus. If belladonna answer the purpose, we should give it a preference, on account of its known aperient effect on the bowels when administered in very small doses, say an eighth of a grain of the extract every six or twelve hours. But on matters of detail, such as doses, the practitioner must depend on his own judgment ; all we can hope to do is to lay down general principles and point out what remedies have the credit of being the best.

Another department of the constitutional treatment is diet : a milk diet with farinaceous puddings ; then eggs ; then broths ; next fish, and afterwards poultry. For drinks, toast-water and barley-water. To this, which is the ordinary antiphlogistic diet, may require to be added wine, with a view to support the vital powers of the sick person. The quantity may be six to twelve ounces of sherry or port wine in the day, according to its effect and according to the previous habits of the patient ; and at proper intervals.

The *local* treatment of erysipelas is of two kinds, palliative and curative ; the former being intended to relieve

symptoms, namely, the heat, the tension, and the pain ; the latter to set up a new action, and supersede and alter the quality of the inflammation. The remedies suited to the first of these purposes are : sedative fomentations, dredging with flour, and inunction with lard ; the second purpose is attained by pencilling the surface with a solution of nitrate of silver. As a general rule, cold and chilling applications are very objectionable ; sloppy remedies are equally so ; and both these inconveniences are obviated by inunction with lard, which we regard as by far the best palliative treatment of this disease. The manner of employing this admirable remedy, which we consider to be as thoroughly specific for outward use as is the tincture of the sesquichloride of iron for internal administration, we shall explain in the words of the surgeon* who first called our attention to it :—" My plan is to relax the skin with hot water or steam fomentations, and after each fomentation to saturate the inflamed surface with hot lard." He then covers the part with a sheet of wool, and keeps the wool in its place by means of a bandage not too tightly applied.

When fomentations are used, they should be laid on by means of a fold of flannel saturated with the hot solution, and covered with oiled silk or gutta-percha ; or the fatus, if substantial, as in the case of chamomile flowers or hops, may be applied in a muslin bag. But these remedies are in every way inferior to the dressing with lard and cotton wool.

The curative local treatment consists in blistering the inflamed surface by means of the application of a strong solution† of nitrate of silver. Mr. Higginbottom, of Nottingham, who is the author of this plan, directs that the solution should be applied freely by the aid of a dossil of

* John Grantham, of Crayford, Kent.

† Mr. Higginbottom's formula is as follows :—*Argenti nitratis* ℥viij ; *Acidi nitrici diluti* ℥xij ; *Aquæ distillatæ* 3j.

lint attached to a piece of stick, and not only to the inflamed part, but to the sound skin bordering it, to the extent of an inch or more, if the case be severe. The solution should be used more freely in bad than in slighter cases. The inflammation rarely travels beyond the limits of the caustic, and even when it does, is easily controlled. Mr. Higginbottom considers the line of nitrate of silver drawn around the circumference of the inflammation as of very little use, and notes that on the scalp the solution rarely produces vesication. The caustic solution is equally applicable to phlegmonoid and simple erysipelas. After the use of the caustic solution, we are in the habit of smearing the surface with lard and covering it with cotton wool, as in ordinary lard inunction.

In the vesicular form of erysipelas the bullæ should be punctured with a needle and gently pressed with a sponge squeezed out of warm water, in order to absorb the serum and flatten the raised cuticle upon the surface of the corium. When this has been accomplished, the inunction and cotton wool may be reapplied.

In erysipelas of the scalp, it is often necessary for the purpose of relieving the tension and pain, to make an incision through the inflamed tissues down to the bone, and in erysipelas phlegmonodes, one or two incisions are required to liberate the pus and sloughs, and especially to ease the pain which is created by the diffusion of pus beneath the fasciæ. The incision has the double effect of giving exit to pus and sloughs, and also of emptying the vessels of the congested skin. After incision, the parts must be covered with a poultice and placed in a position favourable for the escape of the discharges.

URTICARIA.

URTICARIA, or nettle-rash, derived from *urtica*, a nettle, is an ephemeral congestion of the skin, accompanied with a

burning and tingling itching, with more or less redness, and with the development on the red ground of small elevations or wheals, which are sometimes round and oval, and sometimes in long narrow stripes. The rash is sometimes preceded by symptoms indicative of considerable derangement of stomach, and sometimes, in a chronic form, is wholly unaccompanied by constitutional symptoms. It is not contagious.

The resemblance of urticaria to the effects of stinging the skin with a nettle is twofold: firstly, the hot, burning, and tingling itching is similar to that of the sting of a nettle; and, secondly, the white elevations or wheals are due to the same cause, namely, spasm of the muscular structure of the corium. In lichen urticatus we have had the opportunity already of noticing the influence of muscular spasm of the skin in the production of papulæ; it is seen also in the spasmus periphericus, which occasions that common physiological condition of the skin, cutis anserina; and the white wheals raised upon the integument by the lash of the whip in flogging are the result of a similar operation. In some persons the skin is so sensitive and the muscular tissue so irritable, that wheals may be produced at any moment by touching it with a feather, or lightly with the finger. We may thus sometimes trace figures and letters upon the skin, or write our name, and the figures and the writing will instantly stand up in relief in the form of white wheals. We have sometimes noticed in the white wheals of urticaria an alternate contraction and relaxation of the muscular structure, which gave them the appearance of pulsation, or of an ebb and flow of blood in the capillary vessels.

Urticaria is sometimes transitory and sometimes very enduring, lasting even for years. We have thus a kind of division of the disorder into *acute* and *chronic*. The acute forms are preceded and accompanied with symptoms indicative of great derangement of stomach and its sym-

pathetic influence on the nervous and vascular system, producing a temporary fever ; while the chronic forms exhibit no traceable disorder of the economy.

In the acute forms of urticaria there is generally a little swelling, reminding us of the swelling of erythema, and in a less degree of that of erysipelas ; and at the close of the rash there is sometimes a little œdema. But the most striking character of the rash differs essentially from anything observable in either one or other of those affections, namely, the nervous irritation that occasions the muscular spasm. In the acute forms also, the skin is somewhat altered in colour at the decline of the congestion : it is purplish and yellowish, like a bruise ; and if the congestion have run high, as in urticaria ab ingestis, there will probably be some degree of furfuraceous desquamation of the affected part.

Its *varieties* are founded on its occasional febrile character ; on the confluence of its wheals ; on its evanescence or permanence ; and on the extension of its local symptoms deeply into the skin and subcutaneous tissues, and involving a greater breadth of muscular tissue in spasmodic action. They are as follows :—

ACUTE.	CHRONIC.
Urticaria febrilis	Urticaria evanida
„ ab ingestis	„ perstans
„ conferta	„ subcutanea
	„ tuberosa

URTICARIA FEBRILIS is distinguished by the occurrence of symptoms denoting great irritation of the stomach ; for example, weight and fulness at the epigastrium, nausea, faintness, thirst, white tongue, quick pulse, pain in the head, and general lassitude and prostration. After an interval of one or two days, there is an outburst upon the

skin of a number of irregular blotches, vividly red, covered with wheals, and intensely itchy. - This outbreak commonly relieves the gastric symptoms ; but as the cutaneous irritation subsides, the internal symptoms return. The heat and tingling and itching of the skin are always worst at night, and the internal and external symptoms are apt to alternate for a week or ten days before they decline and disappear. Willan narrates a fatal case of urticaria febrilis ; the patient had been intemperate, and was much out of health.

URTICARIA AB INGESTIS is the name given to an attack of febrile urticaria dependent on the presence in the stomach of some irritant or deleterious article of food. The symptoms are apt to come on a few hours after having partaken of the noxious aliment, sometimes in the night, encouraged by the suspension of digestion during sleep, and are very severe, and occasionally fatal. They commence with a feeling of fulness and weight at the epigastrium, with nausea, faintness, giddiness, and sometimes vomiting and diarrhoea. There is a prickling in the throat, with a sense of constriction of the fauces, cough, a feeling of impeded respiration, and swelling of the tongue. From the mucous membrane the irritation spreads to the skin ; the nose, the lips, and ears are swollen, hot and itchy ; the features are enlarged ; the rash extends to the trunk and limbs, and is particularly troublesome in the neighbourhood of the joints. The rash sometimes continues to be annoying for a day or two, but more commonly subsides after a few hours, and is followed by a furfuraceous desquamation of the cuticle.

These severe symptoms are not necessarily the consequence of a highly irritating or poisonous principle present in the food ; but are sometimes induced by the most harmless articles of diet ; for example, rice, eggs, pork, goose, fruit, &c. A more frequent cause of urticaria is shell-fish, and particularly mussels.

Willan has put on record a case evincing a disposition to

periodicity on the part of the urticaria, and we have met with a somewhat similar instance. In Willan's case, the rash recurred weekly for a considerable time; in our own, it re-appeared once at the end of a week.

URTICARIA CONFERTA. — Instead of being scattered as they commonly are, the wheals of urticaria are sometimes collected into thick clusters, and give rise to the present variety. This difference of character is chiefly due to the constitution and susceptibility of the patient, and not to any difference of cause. Its symptoms bring it into the group of the acute forms, bearing some resemblance to those of urticaria febrilis.

URTICARIA EVANIDA ET PERSTANS represent the chronic form of the disorder, in which there are no febrile action and no symptoms of gastric derangement, and wherein the disease continues for an indefinite period of time. In the evanescent form, *urticaria evanida*, the rash is accompanied with tingling and itching, is apt to come out several times in the day, and is very troublesome at night. It appears also under the influence of exercise, after taking meals, and on mental emotion. After a continuance of a few hours, the rash disappears, and no trace can be discovered of its attack. In the persistent form, *urticaria perstans*, the general symptoms are the same, but the rash, with its crop of irritable wheals, continues for several days or weeks, and sometimes for months. The separate wheals do not remain the whole of the time, but are reproduced in succession; and the entire eruption acquires thereby the character of permanence.

URTICARIA SUBCUTANEA. — Under this name Willan has described an affection in which the tingling, burning, and itching are present without the wheals; or the latter are occasional and developed in a minor degree. It is not uncommon in diseases attended with a variety of symptoms to meet with examples in which one or other of these symptoms may be in excess, while another is wanting.

Under these circumstances, if the existing symptom be characteristic, we adopt it as the type of the doubtful affection. In the present variety, the sensation of tingling and stinging, and of puncturing with fine needles issuing from within, are characters of urticaria, while the rest of the symptoms point to some more deeply-seated morbid change in the nervous system. The affection is fortunately rare. Willan remarks that it is partial, and that he had seen it only on the loins and thighs, and sometimes on the arms ; but he conceives that it might spread over the greater part of the body.

URTICARIA TUBEROSA is the result of a blending of the symptoms of erythema tuberosum and urticaria ; the deep-seated morbid alteration of the former is combined with the muscular spasm and pricking and tingling itching of the latter. The tuberos prominences are of large size, varying in diameter between half an inch and two inches ; few in number, flat on the surface, hard to the touch, the hardness being felt to sink deeply into the substance of the limb, and extremely tender. They rise in a few hours, commonly in the course of the night, and when they subside they leave behind them a green and yellow stain like that of a bruise. The disorder is rare, and is only met with in persons beyond the middle age, whose constitution is much debilitated by intemperance and chronic disease. The most marked example that we have seen was in a very fat man of gouty diathesis, who was at the same time suffering from cedematous eczema of the lower limbs. On his thighs were several of these tubera, and between them the greenish-yellow stains of those that had dispersed. Their outbreak during the night was accompanied with severe stinging and itching.

DIAGNOSIS. — The distinguishing signs of urticaria are, the tingling, burning, pricking, and stinging ; the development of white wheals ; and the evanescent character of the eruption. The papules of lichen urticatus are permanent,

although their white or spasmodic stage is transient; and the tuberos elevations of erythema papulatum, tuberosum, and nodosum, are never white like the wheals of urticaria, while the eruption is more permanent.

CAUSE.—Gastric irritation is clearly established as an exciting cause of urticaria in the acute forms, and is not improbably a cause of its chronic forms. To gastric irritation as a cause of chronic urticaria may also be added irritation of any of the mucous membranes of the body, and particularly that of the uterine system. As a predisposing cause, we have detected the presence of debility, generally of the assimilative and sometimes of the nervous kind. Not unfrequently urticaria is associated with rheumatism, and we have also seen it intermittent with neuralgia. Dr. Maclagan having detected in the urine of a person suffering under urticaria a deficiency of urea and uric acid, has suggested that the disease may arise from a want of proper transformation of the waste tissues of the body, and the detention in the blood of the elements of the organic salts of the urine; and he notes the relation subsisting between urticaria, rheumatism, and purpura. Dentition also acts as a cause of urticaria in children.

PROGNOSIS.—Urticaria is not a serious disease, and the premonitory symptoms of the febrile forms, although violent, and for the moment dangerous, are not difficult of relief. Chronic urticaria is very troublesome and obstinate, and is indicative of an existing debility, associated with chronic functional disturbance. Urticaria subcutanea from its connection with nervous irritability, and urticaria tuberosa from its alliance with a broken-down state of the constitution, are necessarily of doubtful augury.

TREATMENT.—Febrile urticaria requires the exhibition of an efficient purgative at first, and the subsequent administration of effervescent salines, combined with ammonia and hydrocyanic acid. When the feverishness has subsided and the secretions are natural, we may then have recourse to

bitters, with the mineral acids and chalybeates, either alone or with quinine.

In urticaria ab ingestis, it may be necessary to relieve the stomach of its load by means of an emetic ; and we may select sulphate of zinc or ipecacuan wine as the most suitable. Bearing in mind the faintness and extreme prostration which sometimes accompany the nausea and sickness of this complaint, Willan cautions us against the use of tartarized antimony as likely to increase that kind of suffering ; and Plumbe, with the same idea, suggests the administration of sulphuric ether in doses of twenty to forty minims every half-hour until reaction is restored ; at the present day he would probably have given the preference to chloric ether.

Chronic urticaria is to be treated by the restoration of the general health. In every instance some one or more functions are deranged, possibly unknown to the patient, and these nothing but an improvement in vital power and general vigour will set right. We have found of great service the mineral acids with a bitter ; cinchona with sulphuric acid ; quinine with sulphuric acid, and quinine with iron ; while very chronic cases will yield to nothing but arsenic.

Where any special indication presents itself, such as the gouty or rheumatic diathesis, we may call in the aid of colchicum, or in a neuralgic complication that of quinine.

The *local* treatment of urticaria consists in the employment of remedies which are calculated to relieve the itching, tingling, and smarting. For this purpose, we find sponging with hot water serviceable ; ablution with the juniper-tar soap ; sponging with the lotion of juniper tar ; frictions with the juniper-tar ointment ; the use of a lotion of emulsion of bitter almonds with hydrocyanic acid ; a lotion of bitter almonds, with spirits of wine and bichloride of mercury ; sponging with hot vinegar ; with a lotion of the sesquicarbonate of ammonia ; and liniments of opodeldoc and

chloroform or laudanum. When one application fails, another must be tried, until the intended effect is produced. Where convenient of access, the tepid bath affords almost instantaneous relief.

ROSEOLA.

ROSEOLA, or rose-rash, so named from its dull crimson or roseate hue, is distinguished not only by the colour of the efflorescence, but also by its manner of distribution, and by its association with congestion of the mucous membrane of the fauces, and a moderate amount of general fever.

The colour of roseola varies in degree of brightness ; occasionally, as in some of the local forms, it is quite vivid ; in the general forms it is less bright, and is influenced by the clearness or muddiness of the skin ; and in the form termed by Willan *roseola autumnalis*, the congested patches "are of a dark damask-rose hue." Associated with this purplish tint of colour of the rash is the tendency exhibited by some of its forms to merge into purpura, and to leave behind them a green and yellow stain, like that of a bruise, at their decline.

The vascular congestion of roseola affects both the follicular and the capillary plexus of the skin ; in the former case giving rise to a punctiform efflorescence ; in the latter to a blotch, resembling erythema in its pathological character. The *general* forms of the exanthem are for the most part punctiform, and are distributed in small clusters or corymbi (*roseola corymbosa*), like those of rubeola. This corymbose distribution of the rash is a point of some importance in distinguishing roseola from rubeola ; the mechanical elements of the rash are identical in the two affections, and the resemblance is often so exact as to render distinction, by the aid of the exanthem alone, a thing impossible.

After the punctiform and corymbose distribution of the

rash, the most frequent form is that of a ring (*roseola annulata*), which sometimes springs from the circumference of a corymbus, and circles it around ; and sometimes begins as a circular patch, and fades in the centre while it spreads by the circumference. In the former case the rings are narrow and fine, and may constitute a general exanthem ; in the latter the rings are broad and local, being limited to some one region of the body, such as the lower extremities.

Under the name of *roseola punctata* we have described a third form, in which, not the corymbi but the separate puncta afford the most conspicuous character ; the congested puncta in this case being sprinkled more or less thickly over the surface of the skin, and also constituting a general form of the exanthem. Following the corymbose, the annulate, and the punctated varieties, comes a fourth form, pointed out by Willan ; namely, a circular blotch, retaining permanently that figure, and remarkable for its deep roseate and almost purplish hue. To distinguish this form from the preceding, we shall venture to name it *roseola maculosa*.

Next in interest to the cutaneous exanthem is that which affects the mucous membrane of the fauces. This is a dull crimson blush ; and, coincident with the congestion of the fauces, there is commonly some degree of swelling and tenderness of the submaxillary glands, and often of the neighbouring lymphatic glands. The participation of the mucous membrane, or internal skin, in the irritations of the external skin, is a pathological phenomenon that our physiological studies teach us to expect ; and the chief point of importance deserving of note in the present instance, is the fact of a similar, but more grave congestion, occurring in rubeola, scarlatina, and variola ; and we may also bear in mind that we have noted the same circumstance already, but in a less degree, in erythema papulosum, in urticaria, and in erysipelas.

The febrile symptoms of roseola are similar to those which accompany the exanthematous fevers generally, but

much less in degree, and often so slight as to be hardly appreciable. They consist for the most part of nausea, headache, aching in the back and limbs, restlessness, languor and lassitude, chills succeeded by flushes, quick pulse, white tongue, thirst, sore throat, and arrested secretions of the skin, kidneys, and bowels. And often, in conjunction with the febrile symptoms, there occur rheumatismal pains.

Moreover, it must not be omitted, in the general history of roseola, that there is no swelling or prominence of the skin, as happens in erythema, erysipelas, and urticaria; and that the affection, although often prevailing epidemically and endemically, is not contagious.

The VARIETIES of roseola may be divided into two groups, idiopathic and symptomatic; the former being independent or primitive in origin, the latter symptomatic of other forms of disease. In a tabular arrangement they may be grouped as follows :—

IDIOPATHIC.	SYMPTOMATIC.
Roseola corymbosa	Roseola variolosa
„ annulata	„ vaccina
„ punctata	„ rheumatica
„ maculosa	„ arthritica
	„ cholericæ
	„ febris continuæ

ROSEOLA CORYMBOSA is the roseola infantilis and æstiva of Willan, the false measles, or rubeola notha, of other writers; but as the exanthem, although most common in childhood, may occur also in the adult, and, although much under the influence of seasons, may happen at any period of the year, we have thought it desirable to affix to it a designation which is characteristic and unalterable, and which furnishes also grounds of comparison with its other forms.

Roseola corymbosa may be regarded as the typical form of the roseolous eruption, as the special form, which, from its resemblance to measles, may be mistaken for that complaint and treated as secondary measles, mild measles, false measles, or *rubeola notha*. It is developed on the skin as a punctiform and corymbose or rubeoloid rash, of a brighter or duller roseate hue, and distributed more or less extensively over the surface of the skin; sometimes appearing on the face and trunk only, and sometimes both on body and limbs.

The exanthem is commonly preceded by slight febrile symptoms of one or two days', and sometimes as much as a week's continuance. The rash makes its appearance in the evening or during the night, being perhaps first perceived on leaving bed in the morning, and lasts for three or four days, commonly subsiding on the fifth. It is crimson at first, soon becomes deeper-tinted, and assumes a dull roseate hue as it fades away. Its eruption is commonly attended with a moderate amount of itching and tingling; but this symptom is often absent, and in its development it follows more or less closely the path of the exanthemata, appearing first on the face, next upon the chest and trunk of the body, and lastly on the limbs; but not unfrequently it is found to invade the entire surface at once.

Absence of regularity is one of the features of *roseola* as compared with *rubeola*: it is variable in colour, in extent, in succession, in eruption, in duration; and it may also be mentioned that it is liable to recur when it has seemingly wholly disappeared.

In the *rubeola notha* of 1863-4, the exanthem was identical with that already described, but had a more decided character; the corymbi were partially papular; the congestion of the fauces was greater; there was more or less coryza; the febrile symptoms were more acute; and the affection formed part of a rubeolous epidemic. Nevertheless, it was often doubtful whether to consider

it as a roseola or a mild rubeola. Sometimes it was curiously intermingled with varioloid, sometimes with diphtheria, and sometimes with rheumatism.

ROSEOLA ANNULATA sometimes makes its appearance as a corymbose exanthem, and the patches throw off small linear rings, or it begins from the beginning as an annular rash, and follows the course of roseola corymbosa, both in the development of its efflorescence and in general symptoms. In the latter case the rings are at first one or two lines in diameter, and increase to the dimensions of half an inch. Sometimes this form of roseola exists as a chronic affection. We had lately under treatment a delicate woman, aged twenty-one, who had been the subject of this exanthem intermittingly for several weeks. She was pale and anæmic; her powers of digestion were weak, and she suffered under assimilative debility and great depression of spirits.

There is, however, another form of roseola annulata which commonly attacks the lower limbs: it begins in the form of circular blotches of about a quarter or half an inch in diameter, and spreads by the circumference, while the centre fades and forms an area surrounded by a broad ring. These rings attain a breadth of one or two inches, are of a bright crimson at first, and as they disappear, fade off into a greenish-yellow bruise-like tint. The constitutional symptoms are the same as those of common roseola, and the course of the local exanthem a week or ten days. We have seen this form only a few times, and then in children under puberty.

ROSEOLA PUNCTATA is a rare form of the exanthem, of which the following are the characters:—Febrile symptoms of a subacute type, accompanied with redness of the eyes, slight coryza, redness of the fauces, and swelling of the mucous membrane of the mouth, ushering in an exanthema at the end of three days; the exanthema appearing on the mucous membrane and skin; on the latter, in

the form of small red spots occupying the mouths of the follicles, then becoming diffused so as to cover the greater part of the body, reaching its height on the third day; at first, of a bright raspberry-red colour, afterwards acquiring a dull roseate hue, the dulness increasing with the progress of decline; *the primary red spots resembling dull red stains* as decline advances, and fading by degrees after the disappearance of the rash; the entire attack lasting ten days, of which three belong to the febrile period, three to the exanthema, and four to its decline; the dark stains being perceptible for some days afterwards, the rash assuming a difference of form on different parts of the surface, such differences being all referrible to roseola.

ROSEOLA MACULOSA, the roseola autumnalis of Willan, occurs in the form of circular patches of about the size of a shilling, and of a "dark damask-rose hue," seeming at a distance "as if stained by the juice of black cherries or mulberries." The constitutional symptoms are very mild, and the eruption subsides in a week or ten days, leaving behind it a slight furfuraceous desquamation. This form of roseola is chiefly met with in children, and principally upon the arms and legs. Occasionally it may take on the annular mode of extension mentioned above; in which case it would constitute a roseola annulata, with broad margin.

ROSEOLA VARIOLOSA is a blotchy redness of the skin, of roseolous hue, which sometimes accompanies the eruptive stage of variola. When inoculation for small-pox was practised, the rash was not unfrequent; at present it is rare. It follows the usual order of eruption of the erythemata, beginning on the face; then descending to the trunk, and afterwards to the extremities. It is regarded as a not unfavourable sign when the rash is of bright colour, but less favourable when dark in its hues, and the eruptive fever runs high. It commonly has a course of three or four days.

ROSEOLA VACCINA is an exanthem similar to the preceding, which accompanies sometimes the development of the vaccine vesicle, appearing on the ninth or tenth day after vaccination. The rash begins in the neighbourhood of the vaccinated spot, and spreads upon the arm and trunk, and sometimes over the greater part of the body. Its course is rarely more than two days, but it is attended with some feverishness.

ROSEOLA RHEUMATICA ET ARTHRITICA. — Rheumatism and gout are both occasionally accompanied with a roseolous rash, appearing in the form of a circular blotch (*roseola maculosa*), and usually on the lower extremities. Sometimes the roseola precedes the attack, and sometimes makes its invasion during the progress of the principal disorder.

ROSEOLA CHOLERICA has been described by Rayer as a roseolous exanthem accompanying the progress of the Asiatic cholera. It sometimes resembled scarlatina, sometimes measles, and sometimes urticaria; was associated with congestion of the fauces and the usual train of febrile symptoms; and was brightly tinted at first, but subsequently acquired a dirty pink or rose-colour.

ROSEOLA FEBRIS CONTINUÆ is the punctated exanthem which so commonly accompanies continued fever, and is met with in all the three varieties, typhus, typhoid, and relapsing fever. It makes its appearance at the beginning of the second week, and is scattered sometimes over the entire body, sometimes on the trunk alone, and sometimes on the limbs, particularly the back of the hands, but rarely on the face. In typhoid fever the exanthem has a bright rose-colour, and disappears on pressure with the finger and after death. In typhus it is mulberry-coloured: it continues on pressure with the finger, and remains after death, when it presents the appearance of petechial spots. The exanthem of relapsing fever also acquires very quickly a dark colour, and passes into the state of petechiæ. Each spot has a course of three days, and fresh spots appear every day;

so that after the first three days they may be seen in all their stages—crescent, mature, and fading.

Under the very objectionable name of *roseola miliaris*, Bateman has noticed the occurrence of miliary vesicles or sudamina in conjunction with the roseolous spots of continued fever. These vesicles are most frequent in relapsing fever; but they appear in all the three forms, and most abundantly during the prevalence of copious perspirations. They are met with chiefly on the neck and breast, in the armpits, and on the sides of the chest.

DIAGNOSIS.—Colour, figure, and febrile symptoms, are the three leading signs by which roseola is to be distinguished from other cutaneous affections; the pink or bright crimson tint deepening into the hue of the damask rose, and fading often into the shadows of a bruise; the punctiform, closely-set dots grouped in clusters; the rings commonly narrow and fine, but sometimes broad; the puncta, and the blotches; the congested fauces; and then the fever sometimes slight and ephemeral, and sometimes severe. But even with all these symptoms before us, it is often difficult to decide between a case of roseola and one of mild rubeola, and we are constrained to call other evidence to our aid. If there exist an epidemic of rubeola, if the patient be affected for the first time; moreover, if there be coryza and a catarrhal cough,—the case is undoubtedly rubeola. In roseola there is rarely any coryza, and still more rarely catarrh.

CAUSE.—The cause of roseola is debility, which may be nutritive, nervous, or assimilative. The exciting cause is probably change of weather or seasons; alternations of heat and cold; and errors of diet. Hence we find it occurring very commonly in the spring and autumn, in the summer, and sometimes prevailing in an epidemic or endemic form.

Reduced power in the system, and a relaxed and weakened state of the skin, are conditions favourable to the development of roseola; hence probably its association with

diseases of debility, such as rheumatism, gout, fever ; and hence also the tendency of the exanthem to pass into the condition of purpura.

PROGNOSIS.—Roseola is by no means a serious affection either in its idiopathic form, or as a complication of more serious maladies. In a chronic form it indicates a general state of disorder of the economy, which we must endeavour to correct.

TREATMENT.—Gentle laxatives, effervescent salines, light bitters with the mineral acids, small doses of quinine with sulphuric acid, mild chalybeates, constitute the pharmacopœia of roseola, both in its idiopathic and in its chronic form. Locally, it is better left alone ; but if much irritation be present, the skin may be washed with the juniper-tar soap and tepid water.

The diet should be of the antiphlogistic kind ; namely, toast-water and barley-water, with or without chlorate of potash or lemon-juice, for drinks ; with milk diet, farinaceous puddings, broths, eggs, fish, poultry ; returning by degrees to the ordinary diet of health.

CHAPTER V.

BULLOUS AFFECTIONS.

BULLÆ is the type of one of Willan's orders, and presents an unmistakable character. His definition of bulla or bleb is, "a large portion of the cuticle detached from the skin by the interposition of a transparent watery fluid." This definition applies very exactly to one of the members of the present group, namely, to pemphigus; but less well to herpes, which Willan treated as a vesicle, and admitted into the same order with eczema; and still less to miliaria, which is truly a vesicle. Herpes is a large vesicle, or small bulla; and although differing entirely in its nature both from vesicular affections and from pemphigus, seems entitled, from the possession of this special pathological form, to a place, for the present at least, in the bullous group; and the more so, as some of the varieties of herpes are really allied more closely to pemphigus than they are to herpes. And as we have broken up the order Vesiculæ, by the dispersion of its different members, this is also the proper place for the consideration of the small bleb or vesicle of miliaria.

The diseases constituting this group are three in number; namely,—

Herpes

Miliaria

Pemphigus

HERPES is derived from the word ἔρπειν, "*quod est*," says Actuarius, "*serpere per summam cutem*;" but this is clearly

an error as applied to the typical form of herpes, herpes zoster; for herpes does not creep, although some of its chronic varieties, which belong rather to pemphigus than to herpes, namely, herpes circinatus and herpes iris, really do so. The term ἔρπης was applied by the ancients to a creeping and eating form of eruption, sometimes vesicular and sometimes ulcerative, and appertaining to the strumous, the syphilitic, and the cancerous affections.

PEMPHIGUS is derived from πεμφιξ, *bullæ*, a water bubble, and is used synonymously with pompholyx, an air-bubble; πομφολυγες being "the bubbles of air which appear upon water;" and πομφοι, according to Galen, "eminences of the cuticle containing a fluid." Another term was applied by the ancient Greek writers to this affection, namely, φλυκταινα, latinized into phlyctenæ, from φλυειν, to bubble or boil up, or over; hence the name of one of the varieties of herpes, namely, herpes phlyctenodes.

The general signification, therefore, of these terms, as applied to the diseases contained in this group, is: herpes, an eruption of bullulæ or small bullæ; miliaria, an eruption of large vesicles; and pemphigus, an eruption of large and undoubted bullæ.

HERPES.

HERPES is an inflammation of the skin, occurring in patches of a more or less circular figure: upon these patches are developed a crop of vesicles, which gradually rise up from the inflamed ground, and attain a semi-globular figure. The vesicles begin to appear on the second day of the inflammation: they are at first transparent, and attain their full size, that of a small pea, in one or two days; on the second or third day, they are opalescent; sometimes of a grape-yellow colour, sometimes purplish and wrinkled. On the third or fourth day, they shrink still further, and

form a reddish-yellow wrinkled scab. On the fourth, fifth, and sixth days, the scab becomes dark-coloured and hard, and has the appearance of being imbedded in the skin; and on the three following days the scabs fall, and leave behind them purplish pits.

This is the history of an individual patch, and of an individual crop of vesicles; but as the patches come out in succession for two or three days, the eruption is generally prolonged until the tenth or twelfth day. The patches are commonly oblong in figure, the long diameter of the patch corresponding with the course of the nerves of the region on which they are developed; and they vary in size from half an inch to two inches in diameter. They are brightly red, very slightly swollen, and the number of bullulæ varies from three or four to twenty or more. Generally, the vesicles are separate and discrete, but sometimes confluent; in which case, several may run together, and constitute a bullula of irregular form. The yellow tinge in the vesicles seen at the beginning of their decline, is probably due to the conversion of the cells of the rete mucosum into pus; and their purple hues to the admixture of blood with the original lymph, the effusion of blood being due to pressure on, or friction of the patches.

Sometimes, and particularly in elderly persons, the eruption does not finish so simply, but terminates in deep and painful ulcers, which may last for a considerable time. The ulcers are occasioned by undue pressure or friction of the eruption, in a state of skin lowered in vitality by age, or by a cachectic condition of the constitution. The scabs which form upon the ulcerated spots are very adherent, and when they are removed, leave deep pits of a purple hue, like those of small-pox, and permanent cicatrices.

It follows from this description that herpes is not simply an eruption of large vesicles or bullulæ; it is, besides that, an inflammation, having a given course, and running that course in a given time; in other words, it is a specific

affection, obeying special laws of its own, and differing from the ordinary physiological laws of the economy. But there is another phenomenon of considerable importance in connection with herpes, namely, an affection of the nerves of the part,—a neuralgic affection. Herpes is essentially an inflammation of nervous origin: the first irritation is that of a nerve; the inflammation and its vesicular development are the consequences. Herpes is therefore accompanied with severe nervous pains, but not always, and not in the majority of cases, and therefore a difficulty arises of regarding it as a pure nervous affection.

The pain of herpes is of two kinds, one being constant, the other occasional; the constant pain is local in its situation, the occasional pain is that of a nerve, commonly a single nerve, and sometimes of all the nerves of the affected region. The neuralgic pain sometimes precedes the eruption, and ceases as soon as the cutaneous inflammation begins; sometimes it accompanies or follows the eruption, and sometimes continues for weeks, months, or even years, after all eruption has ceased; and the patches commonly travel in the direction of the branches of a nerve. For example, herpes zoster, the true *cingula* or shingles, takes the course of an intercostal nerve; the first patch is probably developed near the middle line on the front of the body, at the spot where the anterior cutaneous nerves are distributed to the skin; the second patch will possibly occur upon the seat of distribution of the posterior cutaneous nerves, and the third patch over the lateral cutaneous nerves; other patches taking up intermediate positions upon the same line; while in a partial form of the eruption, a single patch only, or two patches, may be present, namely, the anterior, or the posterior, or both, without any intermediate patches to form a link.

The local pain of herpes is one of intense burning; hence its ancient title *ignis sacer*, associated with tingling, pricking as with hot needles piercing from within, and itching;

and this pain continues throughout the whole course of the eruption.

The *varieties* of herpes may be considered as constituting two groups,—a *neurotic group*, corresponding with the typical form of the affection just described, at the head of which stands herpes zoster;—and a *phlyctenoid group*, represented by herpes phlyctenodes. They are as follows :—

ACUTE.	CHRONIC.
Herpes zoster	Herpes circinatus
„ phlyctenodes	„ iris
„ labialis	
„ præputialis	
„ palpebralis	
„ nasalis	
„ auricularis	
„ pudendalis	

HERPES ZOSTER,* or SHINGLES, is remarkable from its embracing one-half the trunk of the body ; in other words, taking the course of the anterior branch of the spinal nerves. It is commonly met with in association with an intercostal nerve, sometimes with a cervical, a brachial, or a crural nerve. Its usual position is around one-half the waist ; and as it has never been known to attack the two sides of the trunk at the same time, the popular notion, referred to by Pliny, has arisen, that were it to do so the result would be fatal.† From half-encircling the waist, it has been termed *zona* or girdle, and again *cingula*, from which latter term its popular name *shingles* has been derived. Besides the waist, we have seen it on the flank, on the hip, on the thigh, on the shoulder, on the neck, and upon the head. On the head and face it occupied chiefly the occiput, the temple, and the forehead, while one vesicle was developed

* Ζωστήρ, a belt.

† “Zoster appellatur, et enecat, si cinxerit.”—*Pliny*.

on the conjunctiva. On the limbs it takes the course of the cutaneous nerves, as of the shoulder and thigh. Bateman calls a case of the latter kind *herpes proserpens*.

Usually the eruption of zoster takes place without any premonitory sign, and runs through its course without much suffering, with no other pain in fact than the burning and tingling which constantly accompany it, and which have gained for it the name of *zona ignea*; at other times, when the neuralgic affection is severe, the internal organs are apt to suffer also from the communication of their nerves with the intercostal nerves; thus, there may be intense shooting pains through the chest, with tumultuous action and palpitations of the heart. And sometimes the eruption is accompanied with febrile symptoms, which are as likely to arise from the ordinary cause of the eruption, namely, a chill, as they are from the nervous perturbation accompanying the disease.

On the subsidence of the eruption, the neuralgic pains, of a very severe kind, are apt to be continued for some weeks, and to resist every kind of treatment. It has been stated that the eruption attacks one side of the body more frequently than the other. This is not the case; the two sides are equally the subject of the affection. Its seat of eruption is commonly determined by the direction in which the cold which causes it is applied, and sometimes by a temporary or permanent debility of the part. We lately saw a case which had arisen from a chill in bathing, and an inordinately long walk which had strained the muscles of the hip: the eruption broke out on the weakened part.

Herpes zoster enjoys no immunity from the variations that accompany most other natural phenomena, and especially those of disease. This affection may be said to have three principal symptoms; namely, inflammation of skin, eruption of vesicles, and neuralgic pains. We have now to state that one or other of these symptoms may be occasionally absent; for example, there may be inflammation and

pain without vesication ; or there may be inflammation and vesication with a scarcely appreciable amount of pain. And in a fully developed zoster, some of the patches may be studded profusely with vesicles, while on others they are scanty or absent. In these cases we signify our meaning by the use of the term "arrest of development."

HERPES PHLYCTENODES differs from herpes zoster only in situation, being identical in every other respect. Thus, when herpes attacks the trunk of the body and forms a demizone around it, the case is one of herpes zoster ; but when, as we have already described, it appears upon a limb, upon the neck, or upon the head and face, it is more correct to term it herpes phlyctenodes.

Herpes phlyctenodes may occur as a single patch, or as a cluster of several, on any part of the body. The patch rarely exceeds in size the palm of the hand, and it consists of an inflamed surface studded over with vesicles, sometimes discrete and sometimes confluent : occasionally the vesicles are so small as to have suggested the term *herpes miliaris* ; more frequently they attain the size of peas of moderate dimensions.

The patches commence with a sensation of burning, tingling, and smarting ; some red puncta are seen on the painful spot, a blotch of redness succeeds, and on the inflamed surface the vesicles are developed. Sometimes there is a deep-seated soreness and pain as well as that already described. It is rare for any constitutional symptoms to be present.

HERPES LABIALIS represents the local forms of herpes, all of which, like herpes zoster and herpes phlyctenodes, are acute forms of the affection, and have their regular course, never exceeding ten or twelve days. Some occur only once, or if the attack be repeated, it is accidental, and occurs at an uncertain period ; while one of the local forms, herpes præputialis, is intermittent, and breaks out at short intervals for a considerable period of time.

Herpes labialis, a frequent consequence of an inflammatory cold, or of slight febrile disturbance of the system, begins with itching, redness, heat, swelling, and painful tension of the lip and adjacent mucous membrane. On the day following the beginning of the inflammation, five or six small vesicles appear on the affected spot; some of the vesicles congregate and form small cellular bullæ of the size of a split pea. On the third or fourth day the lymph of the vesicles becomes turbid and lactescent, and subsequently semipurulent. On the fifth or sixth day the vesicles desiccate into a brownish crust, and on the eighth or tenth day the crust falls. When the crust is interfered with during its progress, or the inflammation is aggravated by interference, a hard scab is formed, which remains adherent for a longer period than the natural crust.

HERPES PALPEBRALIS, *NASALIS*, *ET AURICULARIS*, are identical with *herpes labialis*, but usually less extensive and less severe. In *herpes palpebralis* the inflammation and vesicles are developed on one eyelid; in *herpes nasalis* along the margin and upon the ala of one nostril; and in *herpes auricularis* upon the lobe of one of the ears and not on the other. In symptoms, course, and termination, these forms correspond with *herpes labialis*.

HERPES PRÆPUTIALIS may occur upon the mucous or upon the cutaneous surface of the prepuce: it consists, as do the other local forms, of a blotch of redness surmounted by a small crop of vesicles, and attended with a sensation of smarting and burning; on the prepuce the blotch is rarely larger than half an inch in diameter; the vesicles found on the cutaneous surface subside after a few days, from the absorption of their fluid contents, and dry up into small thin brownish scabs; but the vesicles on the mucous surface are generally broken, and produce minute excoriations, which are often slow in healing and are liable to be mistaken for syphilitic ulcerations.

Herpes præputialis presents the peculiarity of being inter-

mittent, returning from time to time for several months or even years. It rarely occurs without a foregone irritation of the organ, either in the shape of a gonorrhœa or chancre ; and then seems to perpetuate a remembrance of the original disorder. We know a gentleman who, after the cure of a chancre, suffered during two years with fourteen attacks of herpes præputialis, each attack lasting about ten days. The last time that the eruption made its appearance it showed itself on the cutaneous surface of the derma and root of the penis of one side.

HERPES PUDENDALIS corresponds in every respect but situation with herpes præputialis ; it is developed on one labium.

CHRONIC FORMS.

The CHRONIC FORMS of herpes are distinguished from the acute forms by their more general distribution ; by their longer duration ; by a more superficial inflammation of the skin ; by a tendency to spread ; by less severe local suffering ; by an absence of neuralgic pain ; and by a disposition to the production of larger vesicles, and often bullæ, *herpes bullosus* ; in a word, the chronic forms of herpes prepare us for a transition to the bullous affection pemphigus. The varieties belonging to the chronic group are herpes circinatus and herpes iris ; they have no special constitutional symptoms.

HERPES CIRCINATUS makes its appearance as red and slightly raised spots, which are accompanied with considerable tingling and itching, and are apt to be mistaken for the bites of insects. In a few hours the spot spreads into a blotch half an inch in diameter, and soon after increases to the diameter of an inch or two inches. When it is larger than half an inch, it is found to be slightly depressed in the centre ; and with a further increase of dimensions, the redness of the centre fades and becomes yellowish, and a ring is produced. In the growing disk and

growing ring the peripheral border is observed to be a little raised above the level of the rest of the surface, and is somewhat brighter in its tint of red: it is at this part that vesication begins, and the cuticle is raised into vesicles as large as peas upon the belt of the rings in the course of a few hours. The progress of the eruption is so rapid that that which is a sprinkling of mere itchy spots at night, and a disturber of sleep, may, in the morning, be a crop of annular rings, each surmounted with a circle of glistening bullulæ as large as moderate-sized peas. The vesicles are filled with limpid lymph, sometimes changing to opalescence and milkiness; they become wrinkled and collapsed in the course of the following day, and in a day or two more are converted into thin brownish and blackish scabs. The redness fades with the collapse of the vesicles; the cuticle of its base exfoliates, and in a few days no trace of the patch remains. But as the eruption is successive in the development of the annuli, it may continue for ten or twelve days, or even for a longer period of time.

The development and maturation of the disks and rings is accompanied with more or less tingling, itching, and smarting, and these sensations subside with the patches; but as the latter are produced in succession, and commonly during the night, the pruritus is often exceedingly annoying. The ordinary size of the annuli is two inches in diameter; sometimes they are a little larger; and when the eruption takes place suddenly, at the first outburst of the disease, they may be smaller. In a case in which the limbs and part of the trunk of the body were nearly covered with the eruption in the course of two days, the physician who attended the patient remarked that it was a sight worthy of being remembered. The eruption was still troublesome in this case, although progressing towards cure, at the end of two months.

Occasionally from the beginning, but more frequently in the course of a chronic case of this disease, there are modi-

fications of development of the eruption which are deserving of note. In the first instance there may be, scattered among the vesiculated rings, red blotches or disks, showing no disposition to vesicate; and secondly, there may be disks of moderate size completely covered by a single large bulla; and were it not for the general history of the complaint, we might be induced to pronounce the case to be one of pemphigus. In the example of herpes circinatus above noticed, in which the first attack of the eruption was developed suddenly, both the rings and the vesicles were pretty uniform in size over the whole body. As the case went on, the dimensions of the patches diminished, and in place of a row of vesicles, a single large bleb was produced; and later, when the patient's general health was improved with the aid of tonics, the effusion ceased to occur, and irritable erythematous disks only were apparent.

HERPES IRIS is a lower form of herpes than herpes circinatus. It is essentially, like some of the exhausted patches of the latter complaint, a *herpes bullosus* propagated from the centre by a series of efforts, too feeble to produce a row of independent vesicles, and resulting only in the formation of annular ridges more or less distended with a serous fluid—it is, in fact, an aborted form of herpes circinatus.

Herpes iris occurs very commonly on the back of the hands of elderly persons; and here the disks are small, and the central vesicle equally so. When the affection shows itself on the limbs, and in persons of reduced power, the central vesicle is an undoubted bulla, and the disk or patch may attain the dimensions of one or two inches in diameter.

The process of formation of herpes iris is as follows: An inflamed spot or disk first makes its appearance; the day following, this disk is covered by a vesicle or bleb, while a narrow border of red appears around its circumference;

on the third day the narrow border of red is raised into a vesicular ring, and the redness has crept on for another stage, forming another narrow border of red ; on the fourth and successive days, the same phenomena are repeated until the disk has attained its full size. The effusion, it will be observed, is most abundant in the central vesicle, and diminishes as the rings increase in number. The first ring is more distended than the second, the second than the third ; with the third, the effusion generally ceases, and the rings developed beyond the third are simply erythematous, and distinguished only as shades of red.

The development of the disk of herpes iris undergoes some modifications : occasionally, as in the disks observed on the back of the hands and feet of elderly persons, it never reaches beyond the erythematous stage, and has been named, in consequence, *erythema iris*. At other times the central bulla creeps on with the enlarging erythematous line and forms a bleb, often of considerable size, *pemphigus iris*; absorbing, as it proceeds, the annular vesicles of the circumference. In the erythematous form, as seen upon the hands, there are commonly not more than three shades of colour ; the centre red, the first ring whitish or yellowish, and beyond this a narrow halo of light crimson. On other parts of the body the number of rings may be increased to five or six, or even more. By watching the disks from day to day, we have observed in some cases that a new ring is produced daily, so that the number of rings determines the length of duration of the patch. In one disk we counted seven white rings, representing seven days, and seven circles of fading red between them, the outermost white ring being bounded by a narrow areola of pale crimson ; while in another disk, only half an inch in diameter, there were nine different tints of colour, which, from the centre to the circumference, were as follows :—red, brown, white, deep red, lighter red, deep red, pale red, deep red, yellowish white, and crimson blush. This

appearance of the eruption sufficiently warrants the designation "iris," given to it by Willan.

Herpes iris has no constitutional symptoms: it is always associated with debility, as in the debility of elderly persons, and sometimes, as in children, with nutritive debility and cachexia. It is in a cachectic state of the constitution that it more frequently takes on the pemphigoid form.

DIAGNOSIS.—The diagnosis of herpes turns upon the size of the vesicles, larger than those of eczema and miliaria, smaller than the bullæ of pemphigus; upon the burning, tingling, pricking, and smarting itching; upon the frequent presence of neuralgic pains, and upon the orderly course of the eruption. The local varieties have small vesicles, sometimes multilocular vesicles; but they are always developed upon a patch of redness, and are accompanied with the pathognomonic tingling, smarting, and burning of herpes. Herpes circinatus is recognized by its circle of vesicles or bullulæ, and herpes iris by its centrifugal rings starting from a central umbo.

CAUSE.—The cause of herpes zoster, herpes phlyctenodes, and herpes auricularis is a chill, sometimes proceeding from a cold current of air, as in the prevalence of easterly winds, or sitting in a draft when the body is heated; or sometimes from the direct application of cold, as from sitting or lying on the ground, or the wearing of damp clothes. Herpes labialis, nasalis, and palpebralis, usually proceed from irritation of the adjoining mucous membrane, and follow a feverish cold or catarrh; and herpes præputialis and pudendi originate in some irritation of the neighbouring mucous membrane. We have never seen an instance of herpes præputialis in which there has not previously existed a gonorrhœa, a leucorrhœa, or some syphilitic affection. The cause of herpes circinatus and iris is a debility, a lowered tone of the system, sometimes referrible to nutritive, sometimes to assimilative, and sometimes to nervous

causes. We have at present under our care a patient who has suffered from herpes phlyctenodes, spring and autumn, for several years, the eruption being each time preceded by a bilious attack.

PROGNOSIS.—Herpes is not a grave affection and is sometimes very trivial. In the neuralgic forms the pain is often terrible, and very difficult to conquer. The circinate form and herpes iris, as they indicate a general debility proceeding from a general derangement of health, are of most importance in reference to the health and safety of the patient.

TREATMENT.—The treatment of herpes zoster, phlyctenodes, and the local forms, when unaccompanied with neuralgic pain, is purely local ; if neuralgia be present, constitutional as well as local treatment will be requisite ; and the chronic forms also call for constitutional as well as local remedies.

As the acute forms of herpes are limited in extent, and have a regular course of a certain number of days' duration, all that we are called upon to do in the majority of cases is to protect the inflamed skin from pressure or friction. To this end we shall find no better means than dredging the eruption copiously with flour, and confining it there by means of a sheet of cotton wool, held in its place by strips of adhesive plaster or a bandage, not too tightly applied. We have also found a thick coating of the benzoated ointment of oxide of zinc, afterwards covered with a sheet of cotton wool, and retained in its place by strips of adhesive plaster, very successful. When the burning heat and tingling are very troublesome, we have obtained ease from arrowroot poultices, made by filling a muslin bag with arrowroot jelly and applying it cold ; and at other times, from folds of flannel saturated with a decoction of poppy-heads.

Experiments have been made with ectrotic remedies, but their advantage has not been fully established ; the best of

these is a solution of nitrate of silver in nitric ether, which we have known give considerable relief; it is a good application for all the local forms, particularly herpes præputialis. We have sometimes applied a solution of potassa fusa, in equal parts of water, with the result of immediately checking the course of the eruption. Another mode of using the nitrate of silver, is to puncture the vesicle and after absorbing the serum to touch its base with a point of the caustic; with the local forms this plan answers extremely well.

In the neuralgia of herpes we must have recourse to quinine, citrate of quinine and iron, and arsenic; or if there be evidence of a rheumatic diathesis, iodide of potash; and of a gouty diathesis, colchicum; and as sedative remedies, to belladonna, hyoscyamus, morphia, and chlorodyne. Locally, the treatment must be sedative and stimulant: preparations of aconite, belladonna, morphia, chloroform, cajeput, may all be used in their turn. We have employed a blister without much result, and have derived the greatest advantage from the oleum juniperi pyrolignici, combined with chloroform and tincture of aconite.

The chronic forms of the eruption should be washed with the juniper-tar soap, and sponged with a lotion of the juniper tar, or with hydrocyanic acid in emulsion of bitter almonds, to allay the itching; and afterwards anointed with the benzoated ointment of oxide of zinc, with spirits of wine or spirits of camphor, or a simple camphor cerate. When the vesicles are broken and the corium excoriated, dressings of the benzoated ointment of oxide of zinc on lint should be applied.

MILIARIA.

MILIARIA is the name which is given to an eruption of small globular vesicles of a size corresponding with that of the *milium*, or millet-seed. They are the consequence of a weak and exhausted state of the skin, induced by heat and perspiration, and are commonly associated with fevers, with the puerperal state, with rheumatism, or with any ailment which renders confinement to bed for a lengthened period a necessary condition. From the latter circumstance the eruption has been termed *miliaria clinica*, and, from its combination with perspiration, the vesicles have been named *sudamina*.

The vesicles of miliaria are larger than those of eczema, but smaller than the vesicles of herpes, and, necessarily, very much smaller than the bullæ of pemphigus; nevertheless, they are frequently of a size to suggest the idea of the former, while in their origin they have some of the characters of the latter. They originate in a debilitated condition of the cutaneous tissues, like pemphigus; like the latter disease also, they indicate an exhausted state of the vital power, and they are produced with little cutaneous congestion. But, unlike pemphigus, they are generally symptomatic of an independent febrile state of the constitution, and their course is acute.

At their first eruption the vesicles are filled with a transparent and limpid serum, which reflects the colour of the denuded derma at their base. This gives them an appearance of redness, and has gained for the disorder the name of MILIARIA RUBRA. But in twelve or twenty-four hours the serum becomes opalescent, whitish, and milky, and in this state the appearance of the vesicles has given origin to the term MILIARIA ALBA.

The vesicles are met with most frequently on the sides of the trunk of the body and upper arms; in the axillæ; on

the back and on the neck ; in situations, in fact, the most likely to suffer from heat and perspiration during illness. They are sometimes evolved in patches of various size, but, more commonly, are scattered singly over the surface. They appear in succession, each fresh outbreak lasting three or four days, but the eruption, as a whole, continuing for one or two weeks. The vesicles sometimes break, but more frequently collapse, from absorption of their contained serum ; and the desiccated cuticle forms a small thin scab, which in a short time is removed by desquamation.

Miliaria has no constitutional symptoms ; but its association with fevers has suggested the term *miliary fever*, formerly applied to it. Indeed, there seems to be good reason for the belief that its frequency in former times, and its comparative rarity at present, are to be explained by the better method of treating fever in our own days, and the preservation of a cooler state of the body ; the condition the most favourable for the production of miliaria, being a hot and perspiring state, such as would result from hot rooms, excess of bedclothes, and heating regimen and remedies. To these latter conditions in particular is to be referred the miliaria of puerperal patients. Miliaria is generally accompanied with sensations of languor, of extreme exhaustion, and a feeling of faintness ; symptoms which are attributable to the perspirations, rather than to the eruption ; and the perspiring state of the skin is also made evident by the strongly acid odour of the sick-room.

DIAGNOSIS.—The size of the vesicle is pathognomonic, as is also the absence of inflammatory congestion at its base. It is smaller than the vesicle of herpes, generally scattered, and wanting in the burning, tingling, and pricking of the latter ; while it is too small to be mistaken for pemphigus ; indeed, is a vesicula and not a bulla.

CAUSE.—Debility of cutaneous tissue, generally the consequence of too much heat, and a resulting excess of perspiration.

PROGNOSIS.—The prognostics of the eruption are dependent on the illness with which it is associated, or upon the degree of power of the constitution.

TREATMENT.—The constitutional management of miliaria must be directed to the cure of the disease with which it is associated. Its local or special treatment must have for its object, to give tone to the tissues of the skin, by means, for example, of tepid baths; of washing with tepid water and the juniper-tar soap; of sponging with a tepid solution of ammonia, of a strength sufficient to act as a mild or tonic stimulant; or with tepid vinegar and water. These are means that cannot affect injuriously the disorder in chief, but may possibly be of use to it. In a more prostrate condition of the system, we may prescribe the powder puff; and as the body acquires strength, we may venture to reduce still further the temperature of our local applications.

PEMPHIGUS.

PEMPHIGUS is an eruption of bullæ arising from a very slightly inflamed ground, and distributed more or less extensively over the surface of the skin. The bullæ arise in the course of a few hours, with some tingling and smarting, and often without redness. They are distended with a serous fluid, burst in one or two days, and leave an excoriated surface, which soon becomes covered with a thin brownish or blackish scab. On the desquamation of the scab, the skin is left of a dull red tint, sometimes livid, and frequently stained with brownish discolorations.

The bullæ vary in bulk from the size of a pea to that of the hemisphere of a walnut, or a hen's egg; they commonly cover the whole of the inflamed disk on which they arise; and their contents, at first limpid and straw-coloured or amber-coloured, become opalescent and milky;

sometimes semipurulent, and not uncommonly purple, from admixture with blood. Sometimes, instead of bursting and leaving a red and angry excoriation prone to bleed, the bullæ become wrinkled and collapsed, and dry up into a thin corrugated scab, which is either greyish, light-brown, or black, according to the character of the serous contents ; and sometimes the collapse is only partial, covering part of the base, and leaving a vesicular roll around a part of the circumference ; and sometimes this last-described corrugated and collapsed form is present from the beginning, and never rises to a fully-developed bulla, but forms on desiccation a thin corrugated scab, which being frequently oval in outline, suggests the idea of a dried leaf adhering to the skin : this appearance has given origin to the term *foliaceous*, applied to one of the varieties of pemphigus.

The bullæ of pemphigus are commonly thrown up in clusters of three or four, to twelve or even a greater number, and not unfrequently have separate bullæ dispersed between the groups. Each bulla runs its course in one or two weeks ; but as others appear in succession, a few fresh clusters occurring every day, or every two or three days, the eruption is prolonged for some weeks, and more commonly for several months or years. The affection is therefore essentially *chronic*, and differs in different persons only in degrees of chronicity : the term *acute* is not reasonably applicable to pemphigus. Occasionally the disease is limited to the production of a single bulla, *pemphigus solitarius*, which attains a very considerable size, often as large and even larger than a large orange.

Pemphigus has been called *acute*, in consequence of being occasionally preceded by a little fever, and terminating in a few weeks ; but in general it is chronic and lasts for a considerable period. It usually denotes a low and debilitated and cachectic state of the constitution, and is associated with bleeding from the excoriated skin ; vesication of

the mucous membrane of the mouth, nose, vulva, and vagina; and hæmorrhage from the bowels, from the kidneys, and sometimes from the stomach and lungs. The skin in general corresponds with this morbid state, and is often dry, shrivelled, and discoloured.

The local suffering attendant on pemphigus is a moderate amount of itching, tingling, and smarting on the first appearance of the eruption, and extreme soreness and sensitiveness in the state of excoriation. We have met with one case in which there was a blending of the pruritus and desquamation of eczema with the partially and irregularly formed bullæ of pemphigus. This case we noted at the time of its occurrence as a pemphigoid eczema, and we find a similar case described by Hardy under the name of *pemphigus pruriginosus*. The cause of the affection was identical with that of our own, namely, utero-gestation; the eruption commenced at about the sixth week of pregnancy, the patient on several occasions deriving the first notice of her state from the irritation of her skin, and continued during the whole period of gestation; and the symptoms were so severe as in one instance to result in miscarriage.

Pemphigus is happily a rare affection, and more rare possibly in this country than in others. It is more frequent in women than in men, and is most common in children. Amongst the children of the poor it is apt to show itself in the form of purple and livid spots that tend to gangrene, *pemphigus gangrænosus*; and amongst the ill-fed poor in Ireland, the gangrenous form sometimes prevails as an epidemic.

There are few affections to which so many varieties have been assigned as pemphigus, and its synonym pompholyx; for example, pemphigus congenitus, infantilis, simultaneus, successivus, solitarius, confluens, confertus, acutus, chronicus, pyreticus, apyreticus, vulgaris, benignus, diutinus, contagiosus, gangrænosus, foliaceus, pruriginosus, &c.; but for

practical purposes they may all be included under the five following heads ; namely,—

Pemphigus vulgaris	|	Pemphigus foliaceus
„ solitarius	|	„ pruriginosus
„ gangrænosus	|	

PEMPHIGUS VULGARIS is the common and usual form of the affection : in its milder form, and lasting only a few weeks, it has been termed pemphigus acutus and pompholyx benignus ; but as we have already shown, its symptoms are not sufficient to characterize an acute disease ; and all we can accord to it is that it is less chronic in some cases than it is in others, and undoubtedly milder, *benignus*.

Sometimes some slight febrile disorder precedes the eruption ; but at other times it is unattended with any symptoms but those which belong to the depressed state of health in which the disorder originates.

The chronic form of pemphigus vulgaris is distinguished by the prolonged continuance of the eruption, lasting sometimes for several years, and its obstinate resistance of treatment. A patient before us, a young unmarried woman, aged 26, suffering from this complaint for six months, had purpura which covered the lower half of the body, and was accompanied with epistaxis, seven years ago, and for the last five years she has been the subject of amenorrhœa.

PEMPHIGUS SOLITARIUS is a peculiar variety of the eruption, remarkable for the production of a single bulla, which attains to a very large size, often as big as an orange. It is preceded by a sensation of tingling and smarting, and in a few hours the bulla has attained a considerable size. At the end of two days it bursts and leaves behind it a painful excoriation, which becomes covered with a thin greyish scab. After the lapse of a few days, a second bulla appears

near the seat of the former, and runs a similar course, to be followed in succession by five or six more; so that the attack is prolonged for ten days or a fortnight.

PEMPHIGUS GANGRÆNOSUS.—Under the name of pemphigus infantilis, Willan describes an eruption which has since received from Dr. Whitley Stokes the more appropriate name of pemphigus gangrænosus. It occurs in children, and in Ireland sometimes prevails as an epidemic among the poor. It makes its appearance in the form of small, imperfectly developed, generally flattened bullæ, rising upon a purplish and livid base. The bullæ are filled with a sanguinolent and sanious fluid; they burst in two or three days, and expose an ulcerating and frequently sloughing base; the ulcers are painful, have thin livid edges, and secrete a sanious and fetid pus; frequently they enlarge by their circumference, and when they heal, are slow and tedious in their progress towards cure. By successive eruptions the disease is continued for some weeks; it gives rise to irritative fever, destroys rest, induces general disturbance of nutrition, and finally exhausts the power and vitality of the patient.

In Ireland this eruption is popularly known as *white blisters*, *eating hive*, and *burnt holes*, and “death takes place about the tenth or twelfth day, often preceded by convulsions, sometimes by extreme lividity.”

PEMPHIGUS FOLIACEUS is a variety of the eruption, arising from imperfect development of the bulla; the cuticle is raised from the corium to a superficial extent, and instead of going on to the full development of a bulla, dries up into a thin corrugated greyish or brownish scab. When partially separated, the scabs give a ragged appearance to the skin, particularly when they are abundant; and when they are shed, are frequently replaced by other scabs of similar formation. At first, there is a sprinkling of fully or partially-formed bullæ, with the scales; but after a while, the desqua-

mation exists alone, the skin being deeply congested and exuding a serous secretion. The foliaceous scabs are produced with such activity, that in a few hours, according to Hardy, the bed of the patient is filled with them. At a later period of the disease, when the skin is about returning to its natural state, there is a reappearance of the bullæ.

PEMPHIGUS PRURIGINOSUS is a peculiar form of the bullous eruption, associated with general redness and infiltration of the skin, and an appearance resembling chronic eczema. The above title was given to the disease by Hardy; and the case by which he illustrates the affection was one of utero-gestation: we have ourselves met with a similar case, and can confirm his observation. The bullæ are imperfect, frequently forming no more than a serous roll along the circumference of the patch; but they exist very numerously distributed over the surface of the body. In our own case the eruption occurred with every pregnancy, and at last grew to be insupportable.

DIAGNOSIS.—The distinctive characters of pemphigus are, its large vesicles or bullæ. The large vesicles of herpes circinatus often approach in size those of pemphigus, and as we have seen, constitute a transition-link with pemphigus itself.

CAUSE.—The cause of pemphigus is a general and local debility, approaching to cachexia. We have recorded two instances which followed local injury; in one of them, a servant girl "poisoned" her hand with a red paste, with which she was cleaning brass; a few days afterwards a crop of bullæ, intermingled with ecchymosed spots, came out on her wrist and fore-arm, and continued to trouble her from time to time for seven years. The other case was that of a medical man, who punctured his right hand; three or four weeks afterwards, an eruption of bullæ made their appearance on his left thigh, and were repeated from time to time for eighteen months. Their outbreak was preceded by

feverish symptoms; there was a scalded sensation in the skin, and the next morning a fully-developed bulla would be discovered. It is often sympathetic with irritation or defective function of some part of the mucous membrane, and especially that of the uterine system.

PROGNOSIS.—As pemphigus is indicative of a serious amount of local and general debility, and as the cause of that debility is difficult of detection, and may depend upon some radical defect in the economy, the prognosis must always be doubtful and unsatisfactory. The ultimate result must depend upon the powers of the constitution, and these will be influenced very much by age, position in life, and other circumstances.

TREATMENT.—Treatment must be chiefly constitutional; any disorder of digestive function and secretions should be regulated, and then we must rely upon tonics; the bitters with mineral acids; cinchona with sulphuric acid; quinine; and citrate of quinine and iron. We have also derived good results from the use of arsenic.

If there be feverish symptoms, we may find it necessary to have recourse to effervescent salines, with ammonia; to sulphate of magnesia, with quinine and infusion of roses; and to chlorate of potash.

Locally, we should puncture the bullæ as soon as they are fully developed, in order that the cuticle may fall down upon the denuded corium, and form upon it a covering of protection; then we should dress the eruption with the benzoated ointment of oxide of zinc spread on lint, and afterwards cover the dressing with a sheet of cotton wool. We may, if occasion arise, vary this dressing with one of ceratum calaminæ, or simple cerate with which a few grains of the superacetate of lead (gr. v ad ʒj) have been rubbed down. If there be much sensitiveness of the exco-riated skin, we may allay it by the use of a weak solution of nitrate of silver (gr. j—iij ad ʒj), and dress it as above,

renewing the dressing night and morning, and keeping it in its place with adhesive strips or with a bandage.

In pemphigus foliaceus and pruriginosus we shall find ablutions with the juniper-tar soap and warm water of great use in removing the scales and relieving irritation; and afterwards we must anoint the surface with the benzoated ointment of oxide of zinc; or if the pruritus still be annoying, with the ointment of the pyroligneous oil of juniper; the excoriations being dressed as above with the benzoated ointment of oxide of zinc rubbed down with spirits of wine or spirits of camphor.

The diet in pemphigus should be of the nourishing kind, meat and wine, unless any contraindication arise.

CHAPTER VI.

FURUNCULAR AFFECTIONS.

UNDER the head of Furuncular affections, which properly includes Furunculus, Hordeolum, and Anthrax, we have likewise grouped Ecthyma, as being otherwise isolated, and as presenting several points of affinity with furunculus; for example, it is sometimes associated in the same eruption with furunculus; it is a disease of a pyogenic character; it very commonly ulcerates and sloughs; is essentially a disease of low constitutional power, and evinces a tendency on the part of the constitution to cachexia.

Ecthyma is a pustule; indeed is the type of the order Pustulæ of Willan, and is consequently united in that group with impetigo. From impetigo, however, it differs more than from furunculus; for impetigo is a psudracious pustule, a sero-pustule, a surface affection, developed not singly like ecthyma, but in clusters, with less local inflammation, and without any tendency to ulcerate. Moreover, the alliance between ecthyma and impetigo is dissolved by the union of the latter with eczema; and in consequence of the removal of other diseases from the same order, would be left alone unless joined with furunculus.

The essential points of difference between ecthyma and furunculus are, the frank suppuration of the former, and the presence of a core of cellular tissue in the state of gangrene in the latter.

ECTHYMA.

ECTHYMA, derived from *εκθυειν*, to burst forth, is an eruption of large pustules dispersed over the body and limbs more or less extensively; rarely general, more commonly limited to a part, as to the lower extremities. The pustule is hemispherical in figure, distended with a deep yellow pus, mounted on a hard and prominent base, and surrounded by a red and highly inflamed areola. The pustule ulcerates more or less deeply; has an average duration of ten or twelve days; dries up into a thick greyish-yellow or brownish scab, which is firmly adherent to the skin, and leaves at its fall a purplish-red and pitted cicatrix. The pustules are successive, and the eruption is consequently prolonged for several weeks or months.

The eruption begins with a little itching and tingling, and with the appearance of a small inflamed pimple; the pimple increases in size, a little pus is formed on its summit, and it is quickly converted into a round hemispherical pustule, with a hard and inflamed base. The pustule bursts in three days, and the pus, together with the plastic lymph secreted by its base, dries up into a yellowish-grey and brown scab. If the scab be detached too soon, a small ulcer is exposed, which forms a secondary scab, which remains attached for a considerable time, and at its fall leaves a more extensive and a deeper pit.

This is the *acute* course of the pustule, lasting for eight or ten days; and the eruption is said to be acute when it is composed of pustules of this kind, following each other in succession for three or more weeks; but in a cachectic state of the constitution, the pustules have a *chronic* character; the redness is of a deeper hue or livid; the pustule is purplish from the admixture of blood with the pus; at its rupture a painful, ulcerated, and often sloughing surface

is exposed to view ; the crust formed over this ulcer is more or less black ; the edges of the sore are thin and livid ; and the ulcer is slow in its progress, very painful, and of long duration. This character of the eruption is the basis of the varieties termed *ecthyma luridum* and *ecthyma cachecticum* ; while in an extreme degree of cachexia there may be a gangrenous condition of the ulcer, and a condition warranting the adoption of the term *ecthyma gangrænosum*.

The pyogenic tendency of *ecthyma*, its proneness to ulceration, to sloughing, and sometimes to gangrene, indicate a low tone and debility of the constitution, that may be associated with symptoms of general disturbance of health and more or less fever of the hectic kind ; but there are no constitutional symptoms that can be attributed specially to *ecthyma*.

The pyogenic condition of the system in *ecthyma* is indicated by the frequent presence of superficial abscesses ; a disposition to suppurate in slight wounds and scratches of the skin, and the formation of whitlows ; and the cachectic tendency of the constitution is shown by the frequent occurrence of inflammation of the lymphatic vessels and glands.

The VARIETIES of *ecthyma* are acute and chronic. *Acute* *ecthyma* is the *ecthyma vulgare* of Willan, to which Hardy adds a form almost unknown in England, *ecthyma gangrænosum*. The *chronic* varieties are, *ecthyma infantile* and *ecthyma cachecticum* ; the latter including the *ecthyma luridum* of Willan. In a tabular form they are as follows :—

ACUTE.	CHRONIC.
<i>Ecthyma vulgare</i>	<i>Ecthyma infantile</i>
„ <i>gangrænosum</i>	„ <i>cachecticum</i>

ECTHYMA VULGARE is the more common and simple form of the eruption,—that in which the pustules run the acute course already described, although the eruption may

be prolonged by the successive appearance of pustules for two or three or more weeks, or by its continuance deserve to be considered as chronic. There is more tone and power of constitution in this than in the other forms, and the symptoms are milder in character. The pustules are for the most part developed on the extremities, particularly the lower limbs, the shoulders, and the neck, and more commonly in children than in adults.

ECTHYMA GANGRÆNOSUM is a name given by Hardy to an acute form of ecthyma, which he appears to have seen only once, and in a man exhausted by age and misery. The eruption made its appearance in the shape of phlyzacious pustules, with an areola of a brownish-red colour at first, and afterwards grey. A circular eschar, succeeded by unhealthy ulceration, formed on the second day, and was followed in five or six days by death.

Hardy asks whether this may not be the *rupia escharotica* of authors? We think it not unlikely; for, substituting children for the aged, it corresponds very nearly with the *pemphigus gangrænusus* of Dr. Whitley Stokes, the true representative of the older *rupia escharotica*.

ECTHYMA INFANTILE is more commonly chronic than acute, that is, its pustules are slower in their course; they are more commonly surrounded with a purplish or livid areola, and are more prone to fall into a state of unhealthy ulceration. They are met with in infants at the breast, and in ill-fed and ill-nourished children. Bateman remarks that they not only make their appearance on the extremities and trunk, but also on the scalp, and even on the face, situations in which only *ecthyma cachecticum* ordinarily occurs.

ECTHYMA CACHECTICUM is the chronic ecthyma of the adult, as *ecthyma infantile* is of infants and children. Its milder characters bring it under the denomination of *ecthyma luridum* of Willan; while in a more advanced degree of cachexia it may present every shade of dark red, purple,

and livid in colour, and every variety of ulceration, sloughing, and painful irritability. Although common to every age in the adult where the powers of the constitution are reduced, it is more frequently met with amongst the elderly. There can be no doubt that many syphilitic eruptions were treated as forms of ecthyma by Willan and Bateman, and that the prevailing cachexia noticed by them originated in syphilis. At present we are better informed as to the characters of constitutional syphilis, and less likely to fall into errors of this kind ; and in proportion to our advance in knowledge in this respect, our examples of ecthyma have become reduced in number.

DIAGNOSIS.—The distinction of ecthyma is simple ; its large well-formed pustules, scattered singly over the body, with hard and inflamed bases, are unlike everything else. The pustules of impetigo are only half-pustules, seropustules, in fact ; they are small, clustered, without hardness or much redness of base, and are commonly associated with other characters denoting eczema. The pustules of small-pox are phlyzacious, like ecthyma ; but they are more numerous ; they form part of a general eruption, and they are accompanied with special constitutional symptoms. The pustules of syphilis may also be phlyzacious, and only distinguishable from ecthyma by the other symptoms of that disease ; indeed, a pustular syphiloderma may be an ecthyma developed under the influence of the syphilitic cachexia.

CAUSE.—The cause of ecthyma is debility, both constitutional and local ; the constitutional debility in children and elderly persons being of the nutritive kind, and in adults sometimes assimilative and sometimes nervous. To this may be added local debility, or debility of tissue. In infants and young children, errors of diet, dentition, and errors of hygiene, take a prominent position as remote predisposing causes ; and in adults and elderly persons, all those causes which tend to exhaust the powers of the constitution.

A child of two years of age has an attack of ecthyma with every tooth which she cuts; a lad of fifteen, of strumous habit, determined by nutritive debility, has been the subject of ecthyma of the legs for four years. All causes tending to occasion cacoehymia and cachexia are favourable to the production of ecthyma. Among the local causes may be enumerated irritants of all kinds: a common one in lymphatic and weakly children is the *acarus scabiei*; the pustule of scabies *purulenta* being an ecthymatous pustule. The pustules excited by the action of tartarized antimony on the skin are phlyzacious and ecthymatous; and Hardy calls our attention to an example of excito-sensory action manifested by the development of a crop of ecthymatous pustules on the back, at a point opposite another crop on the front of the chest, the latter being determined by the direct irritation of a blister.

PROGNOSIS.—Like other diseases manifesting a constitutional debility, a tendency to pyogenic transformation, to ulceration, and cachexia, ecthyma is grave without being serious or dangerous. It requires careful watching, and calls for the combination of all the resources of the medical art.

TREATMENT.—The treatment of ecthyma is constitutional and local. The constitutional treatment embraces a tonic regimen in the way of air, exercise, and diet; and tonic remedies, including bitters, mineral acids, bark, quinine, and steel.

The *local* remedies are such as will stimulate the skin moderately; for example, ablution with the juniper-tar soap and tepid water night and morning, and dressing with the benzoated oxide of zinc ointment, with calamine cerate, or with the unguentum *resinæ flavæ*. In a cachectic habit, an ointment of friar's balsam or camphor will be found an useful stimulant; and if there be much irritability, a weak solution of nitrate of silver may be used to pencil the inflamed surface. In a sloughing state of the ulcers, the

stimulating remedies are especially called for, and the surface may be dusted over with pulvis cinchonæ. Poultices and sloppy remedies of all kinds are undesirable.

FURUNCULUS.

The general character of the furuncular eruption is an inflammation, extending deeply into the skin, forming more or less prominence on the surface, and resulting in the loss of vitality of a portion of the substance of the derma. The portion of the substance of the skin so destroyed is the heart of the boil, the core (*cœur*), and the suppuration which follows has for its object the separation and expulsion of the core. The degree of prominence of the boil would seem to depend on the depth of the portion of the skin attacked; when the latter is superficial, involving parts which are looser in texture and more susceptible of distension, the prominence is greatest; but when the inflammation sinks deeply, the prominence is less, although the mischief may be considerably greater, and the case in every way more serious, being attended both with a greater amount of pain, and being much slower in its progress. This, and the extent of the skin attacked, are the prime distinctions between the furunculus and the carbuncle: in furunculus there is but one core, and the core is less deep; in carbuncle there is more than one core, and these cores extend deeply into the derma. Thus, mere size is only a secondary feature in the diagnosis between furuncle and carbuncle; a large boil may be larger than a small carbuncle; although the carbuncle, being an aggregated boil, is generally much more extensive than the furunculus, sometimes reaching to a diameter of six or more inches.

The characters of distinction between furunculus and anthrax relate to their prominence, depth, breadth, colour, number of cores, and degree of pain. Furunculus is more

prominent than anthrax ; but the latter extends most deeply into the skin, and involves a greater breadth of the structure of the derma. The colour of furunculus is a deep red, becoming, as the disease advances, more or less dull and bluish ; that of anthrax presents the same tints in a heightened degree, the deep red is still deeper and darker, often approaching a mahogany hue, and the bluish tint of furunculus becomes a deep purple and livid tint in anthrax. The core, which is single in furunculus, may be multiplied to twenty or thirty in anthrax, until the numerous openings formed on its surface for the exit of the cores give it the appearance of a sieve or colander. Lastly, the pain, severe in furunculus, is more intense and more burning in anthrax.

Furunculus and anthrax, together with HORDEOLUM, or sty, which is a small boil occurring upon the edge of the eyelids, in connection with one of the meibomian glands, are grouped by Willan under the genus PHYMA ; the latter term *φῦμα* derived from *φύω*, *produco*, signifying a tuber, tubercle, or small swelling, and applied by Hippocrates and the older writers to a suppurating tumour ; hence the designations *phyma furunculus*, *phyma hordeolum*, and *phyma anthrax*. Phyma is the first genus of the order Tubercula of Willan ; Plenck makes it a genus of his class Bullæ, under the popular term “Eiterblasen,” *pus-bladder* ; while he places terminthus with the popular signification “erbsen Blattern,” *pea-bladders*, among pustulæ.

The term furunculus is derived from *furere*, to rage, and is expressive of the severity of the pain which often accompanies the eruption ; while the term anthrax, *ἄνθραξ*, *carbo*, in quo *ἀνθεῖ*, id est, floret ignis, a burning coal, indicates a greater degree of severity, and an intense burning pain. To a boil which is more painful at night than during the day, the term EPINYCTIS (*ἐπινυκτις*, ὅτι νυκτὶ ὄρεται, *quoniam noctu oritur*) has been applied. Anthrax presents two varieties not recognized at the present

day, namely, pruna and terminthus. PRUNA, from its resemblance to a small plum, a term applied by Avicenna, is a carbuncle surmounted by a black eschar ; while TERMINTHUS, or terebinthus, is a variety of carbuncle of which the core or slough has been likened in shape and colour to the ripe cone of the pinus abies, or turpentine-tree.

Furunculus, or boil, is a small tumour, more or less prominent and conical, of a vivid or deep-red colour, hard to the touch, excessively tender and painful, slow in reaching maturity, suppurating imperfectly, and containing a central core or slough of mortified cutaneous tissue. After the ejection and separation of a greyish and pulpy slough, the sore heals slowly, the affected skin remains for some time congested and discoloured, and a permanent cicatrix is left behind.

Boils may occur on any and all parts of the body ; they rarely appear as a general eruption, but are successive in their invasion ; and are usually more abundant upon some one region than upon the rest, although by no means confined to a single region. Their common locality is the back of the neck, the shoulders, the armpits, the wrists and hands, the buttock, the perineum, the labia pudendi, the thighs, and the legs ; and they are more commonly met with in the thick skin of the back of the trunk and outer side of the limbs than upon the front of the trunk and inside of the limbs. This remark does not, however, apply to the eruption when it attacks the armpits, the labia pudendi, the meatus auris, and the inside of the buttock, all common localities. Among other situations, we have seen boils on the eyelids, on the nose and ears, on the integument around the mouth, on the cheeks, and on the scalp.

The boil begins as a small red point in the skin, frequently painful from its origin, and tender to the touch ; passing the finger over it, it is felt to be harder and deeper than a common papule, and the tissue around it is evidently condensed ; it is gradually and slowly expanding itself in the

skin, and threatening the mischief which never fails to follow. Slow and certain in its progress, the integument is gradually raised into a prominence of a more or less conical figure; the surface is at first red, then vividly red, then purplish red, sometimes a deep dull red, and sometimes purple, and even livid. After some days (four to six), a point is seen in the centre of the cone, showing that pus has commenced to form, or a blister is raised; the skin gives way, the pus escapes, the core or slough is brought into view, and, after a time, several (four to six), often many days, the slough is sufficiently loosened by the formation of pus between it and the sound tissue, to be thrown off; granulations are then formed on the surface of the cavity, the cavity contracts, the granulations shoot up and reach the surface, and cicatrization takes place; the process of reparation being extremely active (two to four days), when compared with that of the separation of the slough.

The process now described is attended with pain, intense pain,—*crede experto*; the tumour is excessively tender, “as sore as a bile,” and the pain is curiously increased at night, reminding us of one of the synonyms of the disease, namely, epinyctis. The great pain at night very probably results from the inactivity of the muscular system and the relaxation of the mind from its daily office, aided, no doubt, by the horizontal position of the body, the warmth of bed, the stillness of the time, and the necessity for a state of calm and insensibility. The pain attendant on a single boil is prolonged for two, three, and sometimes four days; and when the eruption is successive, the pain of one is only obliterated by that of another, until the patient is worn out with suffering. Some persons are so happily constituted as to their nervous system, that they suffer but little, while others endure the most dreadful agony. Certain differences naturally result from the seat of the boil; a small boil in the meatus of the ear, pressing upon tissues incapable of resistance, from their inclosure by bone and confinement by

strong ligamentous bands, almost crushing the numerous and sensitive nerves of that region, nerves which are in intimate communication with all the most important nervous trunks of the body, is painful to agony, to frenzy ; while, by the same patient, a large boil in another situation, where, from the nature of the tissues, every facility of expansion exists, would be regarded as a mere inconvenience. A boil is painful in relation to the density or confinement of the tissues in which it occurs, and in relation to the neighbourhood of sensitive nerves. A boil in a part of the skin supplied by the trifacial nerve, and involving a filament of that nerve, is intensely painful ; so is a boil in the skin of the nose, tied down to the cartilages by an unyielding fibrous tissue ; or in the lip, where every beat of the coronary artery vibrates through the system ; in the perineum, where the skin is also fixed by strong fibrous tissue ; in the labium pudendi, where the part is apt to swell to almost bursting ; in the armpit, where many filaments of nerves are distributed ; or on the fingers, where the nerves are also abundant and sensitive.

In an attack of boils, it is not all that run the course described in a preceding paragraph ; some stop at different periods of their progress, some do not survive the stage of pimples ; others acquire a certain size, but neither suppurate nor slough : these are the so-called *blind-boils* ; they gradually and slowly subside ; their contents, if any, are absorbed ; they entitle themselves to the distinction of *indolent boils* ; while a certain number only reach perfection. It sometimes happens that the local inflammation is not confined to the boil itself : it spreads to the surrounding tissue ; the whole region is swollen and painful, and occasionally develops subcutaneous abscesses, and sometimes the absorbent vessels become inflamed, and the inflammation is propagated to the lymphatic glands, producing swelling, and sometimes suppuration of those organs. Enlarged lymphatic glands in the groin, from boils on the

buttock or pudendum, are not uncommon ; and enlarged axillary glands, from boils on the hand or wrist, or in the armpit itself, are comparatively frequent.

Furunculus is commonly accompanied with constitutional symptoms of a very slight description ; but sometimes, when the pain is very intense and prolonged, the feverish symptoms run sufficiently high to call for antiphlogistic treatment. The pulse may be quickened ; there may be pain and tightness of the head ; thirst, dryness of the tongue ; languor and restlessness ; and the secretions may be deficient in quantity or arrested ; added to which, when the pain is excessive, or when the boil is developed in the meatus auris, there may be delirium.

HORDEOLUM.

HORDEOLUM, or sty, is a small boil occurring upon the edge of the eyelid, and involving a meibomian gland. In its progress it is indolent, coming slowly to maturity, and presenting at its summit a single purulent point, and sometimes two or three. It is attended with much pain, causes swelling, and sometimes œdema of the eyelids, and diminishes but slowly in size as it subsides, sometimes leaving behind it a chronic redness, which may last for several months. Commonly, hordeolum is single ; sometimes two are met with on the same lid ; sometimes one or more exist on both lids ; and sometimes both eyes are affected at the same time.

ANTHRAX.

ANTHRAX, or carbuncle, is a hard, circumscribed, flattened tumour, very little raised above the level of the skin, but extending deeply (an inch or more) into the cutaneous tissue. It is red in colour, the redness being more or less

vivid or dark at first, often presenting a mahogany tint ; then becoming more or less purple, then livid ; and after the separation of the sloughs and the healing of the skin, leaving behind it a chronic redness and deep-brown stain, which lasts for a considerable time. The pain of carbuncle is very severe, and of the throbbing and burning kind ; the latter character having gained for it its twofold appellation of carbuncle and anthrax ; carbuncle signifying a little coal, and anthrax that same coal efflorescent with fire. When it has attained its full size, and the surface is purple or livid, the cuticle becomes raised into one or more blisters, numerous suppurating points appear in the skin, and these suppurating points are succeeded by perforations, through which the core issues from the stratum beneath in the form of sloughs, the sloughs being the fibrous tissue of the derma, converted into a greyish and whitish pulp, more or less soft and viscous, and mingled with an ichorous, purulent, and sanious discharge. Perforated all over its surface in this way, the face of the carbuncle has the appearance of a colander or sieve. Sometimes, instead of numerous perforations, a portion of the skin of considerable size loses its vitality, and becomes converted into a black eschar, and the slough which follows is homogeneous and extensive. This is the *pruna*, or eschar carbuncle. At other times, and also as a consequence of the loss of vitality of a considerable portion of the centre of the carbuncle, the brownish or reddish-brown slough, isolated by suppuration from the surrounding living parts, broader at its base than its summit, and foliated on the sides by successive extension of the sphacelus, has somewhat of the appearance of the ripened cone or fruit of a fir-tree. This idea in the poetical mind of our forefathers gave origin to the name *terminthus* applied to this variety of carbuncle ; *terminthus* being a mode of writing *terebinthus*, and referring to the turpentine-tree, the *pinus abies*.

Carbuncle, unlike boil, is generally single, and attains

a considerable size; sometimes, when small, there may be several dispersed on various parts of the body. Commonly, the carbuncle varies from two to six or eight inches in diameter, and one inch to one and a half in depth; it is hard and dense to the touch, and feels as though it were imbedded in the skin. It is usually met with on the back of the neck, close to the occiput, or upon the back of the trunk. We have seen it frequently on the shoulder, the side of the trunk, or the loins; and less frequently on the limbs.

A large carbuncle is at all times a dangerous complaint, on account of the great pain which it occasions, the long continuance of that pain, the exhausting process requisite to separate the slough, and the irritative fever with which it is accompanied; added to all, is the fact of its very existence being due to enfeebled powers of constitution; but the danger of carbuncle is vastly increased by its occurrence on the nape of the neck, in which situation it is apt to excite erysipelas of a serious kind, and often to give rise to congestion of the brain, an event which is usually fatal.

Carbuncle is accompanied with more or less irritative fever and general disturbance of the nutritive, vascular, and nervous systems. It occasions loss of appetite and loss of sleep; and when the pain is severe, the patient is not unfrequently delirious.

DIAGNOSIS.—The distinguishing characters of the furuncular eruptions are, their hardness, redness, depth in the substance of the skin, pain, and, at a later period, the deeper tint of colour which they acquire, their perforation at the summit, the escape of so small and insignificant a quantity of pus, and the subsequent appearance of the core or slough. *Hordeolum*, moreover, is known by its seat of development. The special characters which distinguish *furunculus* and *anthrax*, at the first appearance of the latter, are the conical shape of *furunculus*, and the flatness of surface and greater depth of base of carbuncle; at a

later period, bulk, number of cores, tendency to suppurate imperfectly in furunculus and slough in carbuncle, are superadded as further distinguishing features. The mutual relations and resemblances of the two diseases are further exhibited in the name which has been given to the smaller carbuncles, when only three or four cores exist, namely, furunculus anthracoides.

CAUSE.—In referring to the books of our fathers of a few years back, we might be led to infer that boils were a proof of exuberant health, that they were indicative only of the most exalted powers of constitution, and that the *plague of boils* was one of the most desirable events that could happen to youth and manhood. “The boil,” says Mason Good, “is found in persons of an entonic or phlogotic habit, with a peculiar susceptibility of irritation;” therefore, he continues, this tumour is “chiefly found in persons of high health and in the vigour of youth.” At the present day, however, this is certainly not the fact, for we see boils associated with debility in every degree; we are, therefore, driven to the conclusion, that either the human constitution must have undergone a change since the time of our ancestors, or that altered atmospheric conditions have induced an alteration in the diseases of man. Probably both of these propositions are true; for, with regard to the first, we know that the free use of the lancet which was made by our predecessors could not be tolerated at the present time; and with regard to the latter, we are aware that diseases of dyscrasia have increased of late years, and go on increasing; and that the general tendency of disease is to assume a low and debilitated form.

During the last ten or twelve years, and particularly during the first half of this period, there existed, and still continues to exist in a less degree, an epidemic of boils; they afflict persons of both sexes, at all ages, and at all seasons of the year, but we have never seen them occur in any one possessing genuine good health; there is always mal-

assimilation, often cachexia, and frequently the boils are associated with other forms of cutaneous disease, such as eczema or acne. In this so-called furuncular epidemic the boils are for the most part small, and they have a frequent tendency to put on that form which is termed *furunculus anthracoides*, many of them having the character of small carbuncles rather than boils. They are also not unfrequently associated with the phyma or *push*, a small cutaneous phlegmon terminating in abscess; and sometimes large collections of pus are formed in the neighbourhood of the boils, as when they occur in the axilla or in the labium pudendi.

The anthrax or carbuncle is a disease of the latter half of life, and of a debilitated constitution, being always associated with cachexia, and frequently with the gouty diathesis. This has always appeared to us to be the active cause of that monster carbuncle which is apt to form upon the back of the neck; and the cerebral congestion which frequently follows in its train is a gouty congestion, allied to the gouty apoplexy which was so common in the winter of 1855-56, as almost to appear in the light of an epidemic. John Hunter remarks that carbuncle is a disease of a full habit and good living, and almost exclusively confined to the richer classes, and that he never saw but one case in hospital. This was no doubt true at the time that he wrote; it may have been true also in reference to the selection of cases for treatment in hospitals, but it is directly opposed to our own experience; we have repeatedly seen carbuncle in the parish workhouse, and, among the better class, in persons who were strictly abstemious and moderate in their habits, whose only excess was in mental pursuits, which indeed is a great source of deterioration and debility of the physical powers.

PROGNOSIS.—Furunculus, however abundant, is not dangerous; and with the restoration of the general powers is sure to get well. Anthrax is only dangerous when it occurs

in a debilitated and exhausted constitution ; and when it is developed on the occiput and back of the neck.

TREATMENT.—The family of the Furunculi are diseases of debility ; sometimes of nutritive origin, sometimes nervous, but more frequently assimilative, associated with local debility. They therefore demand from us attention, both to the constitution and to the part ; in other words, constitutional and local treatment.

The *constitutional* treatment must have for its object, to regulate the digestive organs and the secretions, to remove any special exciting causes that may be present, and to corroborate generally. To this end the remedies are, mild but efficient purgatives, followed by bitters and mineral acids, cinchona with sulphuric acid, quinine, and chalybeates.

Diet and regimen must necessarily constitute an important part of constitutional treatment. Meals should be regular, and consist of wholesome materials ; the diet generous without excess, and adapted to the habits and capabilities of digestion, and degree of exercise of the patient. In regimen, the sterling requirements are good and abundant air, daily ablutions of the skin of the whole body with cool water and soap, and a proper amount of exercise, avoiding exhaustion and fatigue. Nothing conduces so powerfully to the production of boils as neglect of these considerations. The stifling and impure atmosphere, confinement to the office or house, and an unwashed skin, are the special ingredients for the generation and growth of boils and carbuncles.

A popular remedy for boils is brewers' yeast ; an ounce taken three times a day is said to cure the furuncular diathesis. We have never had occasion to give it a trial, as we have never found these eruptions resist the treatment above directed ; and we cannot discover the principle of operation of the remedy. It can supply neither air nor exercise, and as a tonic we should prefer the brew to the froth.

The *local* treatment of furuncles is of considerable importance; and we have to consider them in their three stages, of origin, maturation, and decline. In the *first* stage our efforts should aim at retarding them; in the *second* stage we must help the suppurating process, and relieve the pain caused by pressure on surrounding tissues; in the *third* stage we must help nature to cast off the dead matter, and heal the ulcers which they have occasioned. Our local treatment is consequently ectrotic, palliative, and healing.

The *ectrotic* treatment consists in the application of the liquor plumbi diacetatis, of the nitrate of silver in solution, or of the compound tincture of iodine. We prefer the first of these remedies, and apply it every six or twelve hours with a camel's-hair brush, leaving it to dry on the surface. The solution of nitrate of silver, of the strength of ten to twenty grains to the ounce of nitric ether, should also be applied by means of a camel's-hair brush, and repeated if no blister be formed, or if the furuncle seem disposed to subside; and the compound tincture of iodine may be used in a similar manner.

The *palliative* treatment supposes the failure of the ectrotic treatment to check the progress of the tumour. We must then soothe by warmth and moisture, and assist in the promotion of suppuration. To this end, the best remedy is a plaster of galbanum and opium spread on wash-leather and slashed in the middle, to permit the escape of pus when the boil bursts. If, in spite of this application, the pain continue or increase, we may be driven to have recourse to a very soothing but at the same time a very bad remedy—fomentation or a poultice. Fomentation is better than a poultice, because it may at any moment be suspended. The poultices the best suited for the purpose are those of linseed-meal, of carrots, or the yeast poultice; and we should recommend that, whichever be used, the skin should be protected with a dressing of lint spread with the

unguentum resinæ flavæ, previously applied. When the poultice is used, it must be changed every six hours, so that the heat may be kept up to a pretty regular standard, and no check to suppuration allowed to intervene.

The objection to the poultice, to confined moisture and warmth, is that it tends to soften and weaken the already debilitated skin, and to render it liable to the subsequent invasion of a crop of smaller boils or ecthymatous pustules. This we must obviate as much as possible, by limiting the extent of the poultice, by washing the circumference of the furuncle with tepid water and soap, and especially with the juniper-tar soap, whenever we remove the poultice; by sponging it with spirits of camphor, or the juniper-tar lotion, and by dressing it, as previously directed, with the unguentum resinæ flavæ.

The *healing* treatment is stimulant or tonic in its intention. The skin around the furuncle should be kept dry: it should be cleaned by means of the juniper-tar soap, and anointed with the unguentum resinæ flavæ, while the broken summit should be dressed with a pledget of lint spread with the same ointment; the dressings being kept in position either by strips of adhesive plaster or by a light bandage.

When a boil or small carbuncle can be conducted to its cure without the aid of the lancet or of the knife, it will always be an event most satisfactory to the patient; but not unfrequently, and pretty constantly with anthrax, the necessity arises for the use of the blade; and therefore we must consider what the circumstances are which render the knife necessary, and, secondly, in what manner it should be used. The conditions urging the incision of furuncles are, extreme pain, inconvenient position, and great hardness and depth, implying a disposition to spread. The first and the last of these conditions represent the chief dangers of the disease. The pain injures the health, and a considerable increase in the extent and depth of the

mischief increases the pain, and consequently the danger of the patient.

Pain is the consequence of the enlargement of the boil ; and the enlargement is due to a double cause, namely, congestion of its blood-vessels and infiltration into its tissues. Now an incision made through the entire thickness of the boil or carbuncle empties the vessels and tissues, reduces the volume of the tumour, and immediately relieves tension and pain. Hence an incision is the very best remedy that can be applied, and at every stage of the tumour. It relieves swelling and pain, as we have already seen ; it prevents the extension of gangrene in the tissues ; it brings the disease to a more speedy conclusion, and it saves the general health and constitution.

As we have remarked above, in carbuncle, incision is indispensable ; and then the question arises as to the number of incisions necessary. In our own practice we have always given a preference to a single incision, carried through the whole extent of the tumour, and in a direction the best suited to facilitate the escape of discharges from the wound. Other surgeons prefer a crucial incision, that is, two incisions in place of one, as calculated to give a greater degree of freedom to the discharges ; and a French surgeon, founding his theory on the known greater degree of sensitiveness of the skin than of other tissues, has recently proposed a subcutaneous crucial incision.

In the practice of incisions in cases of carbuncle, we may avail ourselves of chloroform, or of the numbness occasioned by congelation, as recommended by Dr. James Arnott.

Another method that has been advocated from time to time is the destruction of the central part of the carbuncle with potassa fusa. The advantages proposed by this method are that it is less painful than incision practised from the surface and without the use of anæsthetic agents ; and that it saves a loss of blood which the patient is supposed to be ill able to bear. In certain chronic and irritable forms of

furuncle, and especially those of the anthracoid character, we can affirm the value of the *potassa fusa*.

After the operation, in whatever way it be performed, the wound should be dressed with pledgets of lint spread with the *unguentum resinæ flavæ*, and covered with a linseed-meal or carrot or yeast poultice; and for reasons stated above, the sooner the poultices can be dispensed with the better.

The treatment of *hordeolum* should be the same as that of *furunculus*; cooling lotions to subdue heat and inflammation during the first stage; warm fomentations and poultices to encourage suppuration as soon as the first period is passed; stimulants, such as the *unguentum hydrargyri nitratis* diluted, to disperse any swelling or induration that may be left after the matter is evacuated, and restore the part to its normal state. Constitutional treatment should not be neglected, the principle of treatment being the same as that for boils.

CHAPTER VII.

NERVOUS AFFECTIONS.

NERVOUS AFFECTIONS of the skin are distinguished by alteration of its natural sensibility, such alteration having its seat in the nervous system, and especially in that portion of the nervous system which composes the nervous plexuses of the integument. The alteration may be one of *augmentation* of sensibility, as in the state termed hyperæsthesia ; or *diminution* of sensibility, as in anæsthesia ; or it may be one of *perversion* of sensibility, as in pruritus. In these altered states of sensibility of the skin, there may be no change in its appearance, as in pruritus ; or it may assume a morbid condition of structure, as in the disease termed prurigo.

The diseases composing this group are four in number, as follows :—

Hyperæsthesia
Anæsthesia

Pruritus
Prurigo

HYPERÆSTHESIA, or augmented sensibility of skin, is sometimes idiopathic, and apparently independent of any other form of nervous disorder ; and at other times is associated with a tendency to neuralgia, or with some other form of nervous affection, such as hysteria. Its symptoms are a state of sensitiveness raised to so high a pitch that the slightest pressure on the skin is painful ; the patient is unable to bear his clothes ; the vibrations of the house,

even sounds, produce a painful sensation, and he is prevented from lying in a natural posture from intolerance of the pressure occasioned by the weight of his own body. We know a lady who for some weeks was incapable of lying in bed from tenderness of her skin, without any disease of the organ being present; and another in whom the scratching of a pen in writing seemed to trace its course in fire upon her head; while a gentleman of highly nervous temperament complained of certain sounds producing an acid feeling in his skin.

ANÆSTHESIA is a loss of sensation of the skin, more or less complete. The white discolorations of *morphæa alba* or vitiligo, are anæsthetic; and so also, but in a less degree, are the bald patches of *alopecia areata*. Anæsthesia is known to accompany and distinguish one form of the true lepra, or elephantiasis, *lepra anæsthetica*. One of the first signs of this disorder that is noticed by the patient, is often a loss of sensation of the skin. A gentleman from Mauritius, who consulted me for this disease, told me that his attention was drawn to it first by accidentally pouring boiling water on his arm, and finding that it produced no sensation.

PRURITUS is a state of itching of the skin, without any cause being apparent in the organ itself: there is no redness, no alteration of surface, nothing, in fact, that the eye could detect as a disease. Pruritus is often associated with the eczematous diathesis, and may occur upon one part of the body, while indications of eczema are present on another; or it may occur in a person who at some other time has been the subject of eczema. Pruritus is also very commonly an excito-sensory phenomenon, or is sympathetic of some distant source of irritation, such as intestinal worms or hæmorrhoids.

The sympathetic excitation of pruritus indicates its nervous character, which is also manifested by the manner of its attack; coming on suddenly, raging with violent

fierceness, sometimes periodic, and subsiding for a while totally.

Pruritus is occasionally *general*, but more frequently *local*. When general, it may attack by turn every part of the body ; sometimes it is the consequence of neglect of proper attention to the skin, and at others is due to nervous irritation, originating probably in a state of disorder of the mucous membrane of the alimentary canal. In a case of the latter kind, the patient is apt to believe himself infested with insects, which he feels running about upon his skin from place to place.

In local pruritus the parts of the body in which the itching is most troublesome are its apertures, those in which the skin is continuous with the mucous membrane ; for example, the eyelids, the nares, and especially the anus, the pudendum, and the prepuce. But pruritus also attacks other regions, such as the scalp and the scrotum. We know a young lady who, in consequence of the existence of pruritus of the edges of the eyelids, pulled out all her eyelashes ; another plucked the hair from the top of the forehead ; and a lady of a certain age had the hairs of the head plucked out twice a week, the operation to her feelings being one of extreme enjoyment. Pruritus of the nostrils is a known concomitant of intestinal worms, and so also is pruritus ani.

The *local* forms of pruritus deserving of special attention are—

Pruritus ani	Pruritus urethræ
„ scroti	„ pudendalis
„ præputii	

PRURITUS ANI is often intensely severe and troublesome ; indeed is sometimes almost unbearable, and creates a state of excitement of the whole nervous system. Children suffering from ascarides are often tormented with this itching. In adults the cause more commonly is hæmor-

rhoids and eczema. The sufferers tear the part with their nails, create a serous discharge, and then an eczema is developed. The point of greatest irritation is the line of union of the skin and mucous membrane.

PRURITUS SCROTI is especially eczematous in the character of its itching, but may sometimes exist independently. When the skin is much scratched and torn by the nails, it takes on the characters of eczema. It is often of considerable duration, lasting for some months, or returning from time to time for several years. A case at present under our treatment has continued for five years.

PRURITUS PRÆPUTII is also more frequently dependent on the eczematous diathesis than upon a special cause, although, from its position, it is very apt to sympathize with irritation of the genito-urinary apparatus. Hence itching of the prepuce and meatus urinarius is one of the symptoms of calculus of the bladder.

PRURITUS URETHRÆ is a troublesome irritation that belongs especially to females, and gives rise to great discomfort and annoyance. It appears to be sympathetic with irritation of the mucous membrane of the bladder and urethra.

PRURITUS PUDENDI is among the most annoying and vexatious of the disorders of the female sex; it may exist at all ages, but is most frequent at the mid-period and at the decline of life. In children it is generally sympathetic with ascarides, or some irritation of the mucous membrane of the vulva. At a later period it may result from irritation accompanying the development of menstruation, and is sometimes associated with amenorrhœa. Again, it may be sympathetic with pregnancy or uterine irritation, or depend upon varicose veins of the vagina. It is variable in the extent of surface attacked, being sometimes limited to the mucous surface of the labia; sometimes involving besides the tuberculum urethræ and

the margin of the vagina ; and sometimes extending for an inch or more into the canal of the vagina. When it attacks the cutaneous surface of the labia, it is generally due to eczema. It is a disorder usually of long duration, lasting for months, and sometimes for years.

DIAGNOSIS.—The pathognomonic characters of pruritus are itching without apparent alteration of structure of the skin.

CAUSE.—The cause of pruritus is a reflex nervous action, excited by irritation, commonly of some part of the mucous membrane ; for example, the alimentary mucous membrane, and especially the uterine mucous membrane. In a case lately under our care there existed considerable derangement of stomach, accompanied with gastrodynia, and frequent attacks of vomiting. Pruritus also accompanies pregnancy and ascarides. The predisposing cause is debility, which may be assimilative, nervous, or local ; and the more common of the remote predisposing causes are, deranged digestion, rheumatic and gouty diathesis, abuse of alcoholic drinks, &c. A sordid and ill-nourished state of the skin is not unfrequent as a local cause.

PROGNOSIS.—Pruritus is nowise dangerous, but is frequently very obstinate ; and as a daily annoyance is often more unbearable to the patient than a more serious complaint. In nine cases, the duration of the disorder ranged from one month to six months in five, and from one year to five years in the remaining four.

TREATMENT.—The treatment of pruritus must be directed to the constitutional cause, and especially to the exciting cause. Where the latter is obvious, our treatment is self-evident ; where it is obscure, we must endeavour to improve assimilation and strengthen the health generally. In obstinate cases, we shall find arsenic of great value as a neurotonic, an assimilative tonic, and a special cutaneous tonic.

The *local* treatment must have for its object the restoration of the tone and healthy function of the skin, and the

employment of antipruritic remedies. With the former view, we shall find cold ablutions with the juniper-tar soap of much service; the exposure of the skin to the atmosphere; the use of light articles of clothing. A gentle sweat in the Turkish bath at a moderate temperature (130°), followed by shampooing and a tepid or cold douche, will do much to restore the tone and vigour of the skin. When the seat of pruritus is limited and more under our command, we must have recourse to thorough washings with the juniper-tar soap and cold water preparatory to the application of other remedies.

Our best antipruritic remedies are the pyroligneous oil of juniper, in its pure state in severe cases, and more or less diluted in milder ones. Hydrocyanic acid in emulsion of bitter almonds; the bichloride of mercury in emulsion of bitter almonds; lotions of the sesquicarbonate of ammonia, or of the superacetate of lead, &c. These remedies may be sponged on the irritable parts several times in the day.

In pruritus capitis, a pomade containing one part of the nitric oxide of mercury ointment to three of lard is a good application; in pruritus palpebrarum, a diluted ointment of the nitrate of mercury is the best that can be applied; while in pruritus scroti, pudendi, and ani, the ointment of the pyroligneous oil of juniper is the best. It is necessary, however, to have a variety of remedies of this kind, in order to change them from time to time, or substitute one for the other, in case the first prescribed does not answer the purpose. In very obstinate cases we may employ a lotion or ointment of cyanide of potassium.

PRURIGO.

PRURIGO is an affection of a more deeply-seated position, and more inveterate character than pruritus, and is usually confined to the aged, but may exist at any period of life. It is not only a state of aggravated pruritus, but it also involves an alteration of the structure of the skin, which is hard, uneven, discoloured, and unhealthy, both in appearance and function.

The itching of prurigo is a combination of all the vexatious modifications of pruritus; consisting of itching, tingling, creeping, tickling, pricking, burning, piercing, &c. The act of rubbing or scratching seems to spread and aggravate these sensations, until they become unbearable, and create an excitement throughout the whole nervous system, rising sometimes to a state of frenzy. These morbid sensations occur on all parts of the skin, but seem to be concentrated for the time in the part where the symptoms are present. They are intermittent, ceasing entirely for a while, and then returning with unabated force; and are influenced to a very considerable extent by changes of temperature and by mental emotion. Thus they are brought on by the chill which accompanies the removal of the clothing; by the warmth of bed; and especially by the direction of the thoughts to the evil.

These sensations are associated with an unhealthy appearance of the skin, which is greyish and yellowish in colour; dry; often resembling parchment rather than living skin; sordid; condensed; uneven; and roughened by pimples, resulting from the elevation of the pores. Moreover, to these signs of the disease, we must add emaciation of the person and general wrinkling of the skin. The itching gives rise to a state of spasmus periphericus to a greater or less degree; and its unevenness and papular condition are thereby increased.

For the relief of the itching, scratching with the nails is irresistible; and then a new series of signs are added to the above: the heads of the papules, caused by the erection of the pores, are torn off and bleed, and when they cease to bleed, are surmounted with little black scabs of desiccated blood; and the nails leave their traces on the skin in the shape of long excoriated lines, which present various degrees of freshness; some being recently made and red, others partially crusted, and others again brown and fading; and not uncommonly with all these pathological appearances, there is also a sprinkling of the wheals of urticaria, resulting from the spasmus periphericus previously indicated.

To sum up the signs of prurigo, we must therefore note: pruritus of a severe kind and intermittent; a yellowish-grey colour; small black scabs, intermingled with the red and brown lines produced by scratching; and a generally unhealthy appearance of the skin, which is dry, uneven, sometimes roughened by indistinct pimples, hard, and resembling the surface of leather. Where the skin has been neglected, we may add to these signs a sordid condition, consisting of sebaceous concretions on the surface, partial desquamation, and impaction of the sebaceous ducts with epithelial exuviae and sebaceous matter.

Willan makes of prurigo one of the members of the order Papulæ; but it will be seen that the presence of pimples is an accidental character: there is nothing that deserves the appellation *papule* until the pruritus begins; and often, until the nails have been energetically applied; whereas the painful state of the cutaneous nervous plexuses is in reality the primary and most important sign, and the very essence of the disease.

The VARIETIES of prurigo are two in number, namely,—

Prurigo vulgaris

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Prurigo senilis

We have formerly admitted, with Willan, prurigo mitis, prurigo formicans, and several local forms; but with our

present views, we should refer prurigo mitis to lichen, under the name of lichen pruriginosus; prurigo formicans to prurigo senilis; for the modification of sensation implied by the word "formicans" is clearly not such as to entitle it to separate consideration; and the local forms to pruritus.

PRURIGO VULGARIS embraces the mildest form of the series of symptoms described under our general head. This modification is less the result of any difference in the nature of the disease, than in the circumstance of its occurrence in the young or in the adult, and in persons who are not so exhausted as in the latter periods of life.

PRURIGO SENILIS involves the most severe of the series of symptoms already detailed. It is a disease of the aged, and originates in the cacochymia common to that period of life; the symptoms being exaggerated in proportion to the nervous irritability of the patient. It is no dependence of dirt and neglect, but occurs often in the most cleanly, and in every rank of life. The painful sensations accompanying this disease have been sometimes compared to the gnawing of ants; hence one of the names applied to the disease, namely, prurigo formicans; but it is clear that this distinction is more applicable to the imagination of the patient than it is to the disease itself. An abbé suffering from this complaint, finds his illustration in martyrdom, in the "gril de St. Laurent;" while a soldier compares his pains to being pierced all over with halberds.

DIAGNOSIS.—The diagnosis of prurigo is a severe itching of the skin, associated with altered structure and appearance; the presence of small black scabs, and the traces left by scratching. In the absence of signs of altered structure of the skin, the case is one of pruritus. When there is itching, with papulæ, and the absence of alteration of structure just referred to, the disease is lichen pruriginosus; and when there is erythema, desquamation, and exudation, the diagnosis is eczema. It may be remarked, however,

that we have sometimes seen prurigo combined with eczema.

CAUSE.—The cause of prurigo is debility, commonly, nervous debility; and the lowered tone of the peripheral nervous plexuses permits of that degradation of nutrition and innervation in the skin which occurs in this painful disorder.

PROGNOSIS.—Prurigo is always stubborn, and generally grave when it occurs in elderly persons, on account of the severity of the suffering with which it is associated, and the exhaustion accompanying that state.

TREATMENT.—Our treatment must be constitutional as well as local. Our constitutional treatment should have for its object, to improve the tone of the system and increase the assimilative power; while the local treatment must be addressed to the alleviation of the local irritation and distress. The remedies recommended for pruritus are suitable to both of these purposes; and to these we must add a generous and wholesome diet. Arsenic properly administered and watched, may be regarded as a specific in prurigo. And we may accomplish much towards the restoration of a healthy condition of skin by ablutions with the juniper-tar soap, frictions and manipulations with the hand after the manner of the shampooer, and moderately stimulating applications.

CHAPTER VIII.

VASCULAR AFFECTIONS.

THE VASCULAR AFFECTIONS of the skin form a small group, of which the characteristic feature is enlargement or hypertrophy of the blood-vessels. Sometimes the enlargement is on the side of the arteries, as in *nævus araneus*; sometimes on that of the veins, constituting *hypertrophia venarum*; while enlargement of the intermediate vessels or capillaries gives rise to the various forms of *nævus vasculosus*, which sometimes assume the arterial, and sometimes the venous tint of colour, and acquire the designation of *nævus vasculosus arteriosus*, and *nævus vasculosus venosus*.

In a tabular form, the *varieties* of *nævus vasculosus* may be stated as follows:—

Nævus vasculosus arteriosus

„ „ venosus

Nævus araneus

Hypertrophia venarum

NÆVUS VASCULOSUS ARTERIOSUS, the vascular mother's-mark, presents a bright arterial colour, and is sometimes raised above the level of the skin, and sometimes almost flat. It is composed of a plexus of minute blood-vessels or capillaries in a state of hypertrophy, covered by a very thin layer of corium, and has a spongy texture in the interior. It differs in bulk in proportion to the distension of its vessels with blood; in a passive state being corru-

gated and more or less flaccid, and in an active state smooth and distended, almost to bursting. This quality of the nævus, of swelling under the influence of a more active state of the circulation, has gained for it the name of *erectile tumour*, and in the same language, it is said to be composed of erectile tissue.

The vascular nævus offers some differences of figure and extent. The flat nævus is irregular in outline, uneven on the surface, and sometimes of considerable breadth. The elevated nævus is round or oval in shape, of less considerable extent, and more or less smooth superficially. The variety of shape of these tumours, their colour, and their prominence, associated with the fact of their being congenital, have suggested a number of fables with regard to their origin, founded for the most part on the imagination. It is believed by the people that they result from the mental influence of the mother operating upon the foetus during pregnancy; that sometimes they proceed from unnatural longings, and at other times from violent mental emotion or fright. Hence the popular designation, *mothers' marks*; and hence also the objects which they are supposed to represent. These objects must, of course, be red in colour, to correspond with that of the nævus; for example, fruit, such as currants, cherries, raspberries, strawberries, the boiled lobster, and blood. In the case of an infant afflicted with a nævus of this description lately brought under our notice, the mother said that at about the fourth month of her pregnancy she had an intense longing for some raspberries that she saw growing in a gentleman's garden, and that she was unable to divest her mind of this impression during the whole of the subsequent period, and that she was haunted with the dread lest her child should be marked. It is needless to say that the longing had no share in the production of the nævus; but the coincidence of these longings and defects of structure of the child is sometimes very curious. The arterial vascular nævus very

frequently disappears gradually in course of time, especially when the disorganization is not very deep or extensive ; at other times it enlarges and spreads, and is apt to give rise to considerable deformity of appearance, particularly when it has its seat upon the face. The situations in which it most frequently occurs are the head and face, the shoulders, and the front of the trunk of the body.

NÆVUS VASCULOSUS VENOSUS.—The venous form of vascular nævus is distinguished from the arterial nævus by its purple or livid colour. This difference of colour is due to a slower and more languid circulation through the nævus, which gives time to the blood to undergo its venous transformation ; and under the influence of an exciting cause capable of increasing the rapidity of the circulation, the blood becomes redder and assumes a less purple character.

The venous vascular nævus, like the arterial nævus, may be either flat or prominent, and present similar characters. The popular fancy sees in this form of nævus fruits of a deep purple or black colour, such as blackberries and black currants, or the hue of the unboiled lobster ; and the longing of the mother is supposed to have taken that direction.

When the nævus is superficial and but little raised, it is sometimes termed a *claret stain*, and may spread over a considerable extent of surface, as the whole of one side of the face. These nævi sometimes occupy the eyelids, the ears, and the lips, and in these situations are apt to swell to a very considerable size, and produce very great deformity.

NÆVUS ARANEUS is not a congenital form, but may appear at any period of life, being most common in children and women, and persons possessing a delicate and weak skin. It consists of a small globular prominence, from which several radiating vascular lines pass off around, like rays from a centre. The globular prominence is an aneurismal loop of a minute artery, and the radiating lines are the

veins which carry the blood away. At a short distance from the central umbo they sink into the skin and are lost in its deeper circulation. The peculiar shape of the nævus, a red centre with radiating lines that might be compared to the legs of a spider, has suggested the name by which it is known, namely, *spider nævus*.

There is, however, another form of nævus araneus in which the venules communicate with each other at a short distance from the central boss, by means of a network of anastomoses, and give a different character to the appearance of the nævus; this we have distinguished as the *nævus araneus reticulatus*; in other respects it corresponds exactly with the ordinary nævus araneus.

The nævus araneus is most commonly met with on the cheeks, near the eyelids, and sometimes on the eyelids themselves. It is also seen on other parts of the face, and occasionally on the neck and chest; less frequently it is found upon other parts of the body where the skin is firmer and tougher.

HYPERTROPHIA VENARUM is a term applicable to enlargement of the minute veins of the skin; vessels that in a normal condition of the organ are imperceptible to the eye. Their enlargement is principally due to weakness of tissue, but in a measure also to causes which give rise to obstruction in the current of the venous circulation. They are met with chiefly on the face and on the lower extremities, but occasionally on other parts of the body, and are unaccompanied by any pain or inconvenience beyond the deformity of appearance which they necessarily occasion.

On the face they are seen principally on the nose, the cheeks, and the chin; on the nose they are most conspicuous on the sides of the alæ and at the tip of the organ. In these situations the venules sometimes attain a considerable size; they are formed by the confluence of smaller venules derived from a plexus which occupies the fleshy border around the apertures of the nares, and proceed upwards in

parallel lines to the upper border of the alar cartilage, where they dip into the substance of the nose and join the veins of the Schneiderian membrane. On the sides of the bridge of the nose, and on the cheeks, they form a coarse plexus, and on the lower limbs, particularly the thighs, they constitute a superficial plexus of small extent, which is bluish in colour, nodulated and uneven on the surface, and gives a feeling of hollowness and sponginess to the touch. In the latter situation they empty their blood into the subcutaneous veins, which are also more or less varicose.

This state of hypertrophy of the venules, when it occurs upon the face, is accompanied with more or less hypertrophy of the cutaneous tissues; the skin has a coarse appearance, is thickened to a certain extent, and in an advanced state of varicosity becomes generally enlarged, purple, and even livid. These phenomena occurring in the nose produce swelling and enlargement of that organ; infiltration into the subcutaneous tissues takes place, and a foundation is laid for those huge lobulated noses which are occasionally met with in society.

Hypertrophia venarum occurs only at the adult period of life, and amongst elderly persons, and commonly results from a lowered tone of health. On the face and nose it is sometimes due to sedentary habits, or to exposure to inclemency of weather or climate; and on the lower extremities is referrible to retardation of the circulation caused by a varicose state of the receiving venous trunks.

DIAGNOSIS.—A prominence formed by blood-vessels in the substance of the skin is so easily distinguishable as to call for no special remark. The flat varieties of vascular nævus, with smooth and unbroken cuticle, are not likely to be mistaken either for erythema or eczema, and the papulated and compressible elevations of nævus araneus and smaller vascular nævi are wholly dissimilar to the solid papulæ of lichen or strophulus.

CAUSE.—The cause of nævi is essentially a weakness of

tissue, combined with abnormal nutrition ; in the instance of congenital nævi it is an abnormal growth centred in a part instead of distributed through the entire organ. The minute aneurism constituting nævus araneus is commonly the result of muscular efforts which subject the vessels of the skin to a sudden distension ; such as coughing, sneezing, struggling ; the forced muscular throes of labour, or inordinate efforts of any kind. Hypertrophia venarum is commonly slow in its development, and results from exhaustion of tone of the vessels by frequent and excessive distension.

PROGNOSIS.—Unless in very extreme cases, either of excessive depth or breadth, nævus and hypertrophia venarum are removable by surgical means. They are very rarely of a fatal character.

TREATMENT.—The treatment of nævus is almost entirely local. If there be evidence of a weak and relaxed state of tissue, a constitutional treatment may be had recourse to, with the view of strengthening the part through the whole ; and in hypertrophia venarum there may arise good reason for this practice.

The *local* treatment consists in the application of surgical means, which have for their object either the obliteration of the nævus, or its ablation, either by ligature or by the knife.

We have said that congenital vascular nævi often get well spontaneously ; the undue supply of blood requisite for their maintenance is apt to diminish, their vessels contract, gradual obliteration follows, and nothing but the cicatrix remains. A cicatrix is inevitable, because the skin has become disorganized ; its vessels have been developed at the expense of the other tissues, and the other structures of the skin have been spoiled beyond the means of restoration. Relying upon this process, there is no occasion for an early application of treatment, and especially so when the nævus exhibits no tendency to enlarge.

The practice of obliteration is an imitation of nature's

process of cure: we effect it by compression; but the compression must be constant, so as to empty the vessels completely, and prevent the return into them of the blood; we thus put them into a state the most favourable to insure the contraction of their walls; and if this contraction be preserved for a while, it will continue permanently. There is a probability also of the deposition of plastic lymph in the *areae* of the vessels, and its subsequent organization; in which case, complete obliteration is attained.

We further aim by our treatment to produce this effusion of plastic lymph; and to this end we add the use of stimulants to simple compression. The simplest form of stimulant is a styptic solution; such as the liquor plumbi diacetatis, or a solution of alum, applied by means of compress and steadily retained in its place; indeed, speedy cure, or cure at all, may be said to depend wholly upon our power of keeping up a steady and constant pressure. The above plan is that of Dieffenbach; and a severer method founded on the same principle is recommended by Behrend; namely, the application of strong acetic acid, followed by compresses wetted with vinegar: this process is apt to produce ulceration of the skin. From the known corrugating and styptic properties of creosote when applied locally, this also might be found to be an useful remedy. When there exists no objection to setting up an ulcerative action, which to us appears wholly unnecessary, we may have recourse to nitric acid, or potassa fusa.

The plan of treatment considered above applies chiefly to the flat forms of *nævus*, and is not so suitable in general to the more prominent forms. Nevertheless, the principle of treatment must be the same in both, the actual treatment differing only in its manner of application. Thus it has been proposed to induce the deposit of plastic lymph in the *nævus* by exciting in it the inflammation of the vaccine virus; in other words, by vaccinating the tumour. Again, it has been suggested that a seton should be passed

through it, or that it should be injected with some astringent solution. Actual cautery also has had its advocates. An elegant and very promising method was recommended by Marshall Hall, namely, puncturing the tumour with a cataract needle, breaking down its tissue, and then applying a compress.

When a more speedy cure is sought for, we may have recourse to ligature, the ligature passing beneath one or two needles with which the base is transfixed. To obviate the loss of integument with which this process is accompanied, Liston proposed to make a crucial incision across the tumour, to reflect the flaps, and then to introduce a ligature through the base of the tumour. Smaller tumours have been taken out at once by simple incision; but loss of blood is always to be guarded against, and therefore the ligature is usually preferred to the knife.

Nævus araneus is best treated by a little operation of our own, namely, touching with a sharp point of potassa fusa; and the enlarged venules of hypertrophia venarum we treat in a similar way. Our plan is to break a small piece of potassa fusa into fragments, to select a fragment with a sharp angular point, and with the aid of a small pair of forceps, to use the angular fragment as a needle. We scratch the summit of the boss in nævus araneus with this sharp point and press it into the cavity; we hold it there for an instant, and upon withdrawing it, the drop of blood in the vessel is coagulated and charred. If there be hæmorrhage, we press the spot until the bleeding ceases, and repeat the operation. When the blood contained in the umbo of the nævus is charred, the charring commonly extends to the radiating vessels; but if these remain pervious, the caustic is to be drawn briskly along their course, so as to char the blood which they contain. The venules of hypertrophia venarum we treat in a similar manner to the radiating vessels of the nævus araneus.

CHAPTER IX.

HÆMODYSCRASIC AFFECTIONS.

HÆMODYSCRASIA, derived from *αἷμα*, *blood*, and *δυσ-κρασις*, *bad constitution*, signifies an alteration in the blood, which results in the deprivation of its healthy qualities. The blood is more watery than natural; its coagulable part is deficient in quantity and density; its fibrinous elements and plastic properties are below the average; and in extreme cases the blood-corpuscles have a tendency to break up and decompose, and permit the solution of their colouring principle in the serum. In other words, the blood is weak, poor, thin, and unequal to the proper nutrition of the body and the maintenance in health of the tissues.

This state of the blood is associated with, and is a part of a general cacochymia and cachexia, which lowers the vitality of the body, and subjects it to the invasion of a series of morbid phenomena representing every degree of debility, from a state not wide in its departure from health to a state more nearly approaching the changes which take place after death. The morbid change in which we are the most interested at present is the altered relation of the blood-vessels and of the blood, of the containing and of the contained part. On the one hand, the vessels are weakened and relaxed, and lose their power of retention; while, on the other, the blood is more thin and watery than natural, and more prone to escape through their porous walls. There results from this combination of morbid conditions an

escape of blood from the capillary vessels of the skin, in the form of spots more or less profusely dispersed over the surface. The spots are purple in colour, and the affection so engendered is termed Purpura.

PURPURA.

PURPURA, therefore, is a morbid affection of the skin, denoted by the presence of purple spots dispersed over its surface, and having their seat in the papillary layer of the corium. The spots may be developed on every part of the skin, but are most abundant on the limbs, and particularly the lower extremities, and are successive in their appearance, fresh spots becoming visible every day until the body is more or less completely covered. The spots are at first of a bright purple hue; they gradually become darker, livid, or almost black; at a later period they lose their brightness and their sanguineous colour, and as they fade, assume the varied tints of a declining bruise, namely, brown, green, and yellow, until they are entirely lost. As the seat of these changes is the surface layer of the corium, the cuticle escapes alteration, and there is no desquamation.

Such is the history of simple purpura, *purpura simplex*: it is unaccompanied by specific symptoms; the symptoms with which it is joined being those of cachexia in general, sometimes aggravated by the feverishness common to cachexia; namely, hectic fever. In consideration of this simple course, purpura has received a variety of names, all of them being illustrative of the same idea of mildness of character of the disease; for example, *purpura apyreta*, *purpura sine febre*, *purpura chronica*, &c.

But purpura from its very nature, namely, involving a tendency of the blood to escape from its vessels, and a degraded condition of the blood itself, may be much more serious than is here described; the blood may be effused in

larger quantity; the effusion may not be limited to the skin, but may extend to the mucous membrane of the alimentary canal; of the air-tubes, of the uterine organs, of the urinary apparatus; or it may take place into the serous cavities, as of the arachnoid, and even into the parenchyma of the different organs of the body. We may thus have a series of aggravations that must convert a very simple affection into one of a serious kind; a mild and comparatively unimportant disease into one of a grave and fatal character. The phenomena above described belong to the variety of purpura termed *purpura hæmorrhagica*.

Simple purpura has been also called *purpura spontanea*, in order to mark the distinction of a purpura which is commonly associated with continued fever; namely, with typhoid, typhus, and the relapsing fever. We have already noticed these fever-spots under the head of Roseola, to which they appear to belong, rather than to true purpura; the first effort of nature being the production of a roseolous eruption, the dyscrasis of the tissues determining instead, an exosmosis of the blood, and, consequently, a purpura. It is also to be remembered that a mitigated form of purpura is a common sequence of roseola; the purple and yellowish bruise-like stains being of a purpureous or porphyritic nature.

The relation of purpura to the healthy condition of the body is illustrated in a peculiarly interesting manner by the purpura of sailors—*purpura nautica*—who have been for a long time restricted to a deficient and unwholesome diet. *Sea scurvy* is a purpura hæmorrhagica, and in pursuance of the same idea, purpura simplex has been termed, in popular language, *land scurvy*. Sea scurvy is not, however, confined to the sea; but as it depends upon want of food and proper ventilation, may exist equally on land, when those conditions prevail. Hence it is a frequent accompaniment of the famines which sometimes overtake populations.

The skin of elderly persons, particularly those in the

lower ranks of life, is subject to an effusion of its blood into the superficial portion of the corium, and giving rise to purple and livid spots of various size. These appearances are commonly observed in the forearms, and have received the name of *purpura senilis*. This, however, must be regarded simply as a courtesy title, and the best we can say of them is, that they are spots resembling those of purpura, but independent of the symptoms accompanying that disease. They are, in fact, more interesting to the pathologist than they are to the practitioner, as they indicate not a disease but a state which resembles disease, and which forms a link of some value in the comparative pathology of this curious complaint.

We retain also among the varieties of purpura a *purpura urticans*, and we regard it as a purpura complicated with the spasmus periphericus and pruritus of urticaria. It might sometimes be a question which of the two diseases was in the ascendant, the purpura or the urticaria; but it is evident which is the most conspicuous and permanent; namely, the former; and it is not an uncommon phenomenon, and one of more importance than is at first apparent, to find a substantive disease sometimes performing the secondary part of a symptom. Thus, in purpura urticans, purpura is chief, while urticaria plays a subaltern or secondary part. We have already adverted to the relation of roseola and purpura in continued fever, and we remind the student also of the association of purpura with lichen, in the variety of the latter termed *lichen lividus*, and we have seen it conjoined with eczema. We must also call attention to the association of purpura and pemphigus, or, for the gratification of the lovers of complicated nomenclature, we might say, *purpura pemphigoides*.

That purpura and pemphigus should be united is by no means remarkable; it is an occurrence that we might predicate beforehand; and it possesses interest as a pathological fact. Both diseases taken separately are diseases of cachexia, of

dyscrasia, and their union in the same individual suffering under that state, is no more than we might *à priori* expect. Purpura is a dyscrasia in which the colouring principle of the blood filters through the capillary vessels, probably in solution in its serous or liquid part. Pemphigus is a disease in which the serum of the blood exudes through the capillaries of the skin, and raises the cuticle in bladders of various size. If in the case before us there were no purpureous spots, we should call it pemphigus; but in the presence of those spots we are apt to regard, and on reasonable grounds, purpura as the major disease. Purpura, like pemphigus, may accompany any form of cachexia, whatever its source, or any disease which determines a cachectic habit; thus, it might occur in the syphilitic cachexia, and only does not do so more frequently than we see it at present because it demands for its development besides the cachexia resulting from the presence of poison in the blood, the more exhausting cachexia that results from bad and insufficient food. Pemphigoid purpura is not especially a disorder of the lymphatic diathesis, but is generally accompanied with a tendency to œdema of the subcutaneous cellular tissue.

The milder forms of purpura may exist with little or no constitutional disturbance; but the severer forms are accompanied with symptoms of prostration and exhaustion. Purpura is also not unfrequently associated with diseases of a neuralgic character, and particularly with rheumatism. The local symptoms of the disease are, a mild degree of prickling and tingling, with tenderness and soreness to the touch. These symptoms in general attract very little attention; but the prickling and tingling are raised to an inordinate and painful degree in purpura urticans.

The spots of purpura have received several names, in accordance with their figure and dimensions. The smallest kind of spot, which is a mere speck or dot, is termed *stigma*; next in size to the stigmata is the *petechia*, a

round spot resembling a flea-bite, from which the term is derived. The petechia, however, is wanting in the deep red centre which indicates the point of perforation of the haustellum of the insect ; although, as it is formed around the aperture of a pore, a central indentation may be frequently observed. Of a larger size than the preceding, and frequently the product of the union of several petechiæ, are the *vibices*. They are irregular in figure and of various size. Lastly, there may be blotches of larger dimensions than the vibices, and which owe their origin to a palpable extravasation of the blood in more considerable quantity ; these are termed *ecchymoses*, or *ecchymomata*. They may present every variety of figure, and at their decline have the appearance of a considerable bruise.

Willan includes purpura in his order Exanthemata, and associates it with rubeola, scarlatina, urticaria, roseola, and erythema. Its total separation in character and nature from these diseases, must be sufficiently obvious ; and its occasional association with urticaria and roseola, as an urticaria porphyretica, and roseola porphyretica, affords no grounds for this classification.

The VARIETIES of purpura may be stated as follows :—

Purpura simplex	|	Purpura urticans
„ hæmorrhagica	|	„ senilis

PURPURA SIMPLEX is represented by the mildest series of the symptoms enumerated above : there are no ecchymoses, and the stigmata, the petechiæ, and the vibices, are distributed more or less partially over the body, chiefly upon the lower extremities ; but also on other parts, as the arms, and the front of the abdomen and chest. The eruption of the spots is successive ; they are preceded and accompanied by a little prickling and tingling, and by a feeling of soreness and tenderness of the skin, while the constitutional

symptoms are such as to indicate general debility and cachexia ; for example, languor and lassitude, depression of spirits, loss of appetite, and interruption of the functions of digestion and secretion.

PURPURA HÆMORRHAGICA is recognized by an aggravated development of the general symptoms of purpura ; the spots begin in the lower extremities, and gradually creep upwards until they invade every part of the body, with the exception of the hands and face. The spots are of all the kinds above enumerated,—stigmata, petechiæ, vibices, and ecchymoses. The most moderate pressure produces a purple mark or ecchymosis, and the ridges of the folds or wrinkles of the skin are traced in purple or livid lines. Moreover, there are mingled with the spots, not unfrequently, vesicles or bullæ containing blood, and there is a tendency to œdema of the subcutaneous tissues.

The spots are not limited to the skin, but are seen also on the mucous membrane of the mouth and fauces, and on the conjunctiva. The gums are spongy and bleeding, and the presence of a similar condition of the mucous membrane in hidden parts of the economy is recognized by hæmorrhagic discharges from the nose, lungs, bowels, uterine cavities, and sometimes from the bladder and kidneys ; and after death, spots of ecchymosis are found in the greater number of the organs of the body, beneath the serous membranes, and between the coats of the arteries and veins.

The constitutional symptoms of purpura hæmorrhagica are a repetition of those of purpura simplex, but in a more severe degree : there is more languor, lassitude, prostration, and muscular debility. The pulse is feeble and quick ; there is depression of the moral powers, and fever of the hectic kind. The frequent recurrence of internal hæmorrhages increases the debility and hectic feverishness ; there is great faintness ; the limbs become œdematous ; and the patient sinks from exhaustion, sometimes dying suddenly during

the continuance of an hæmorrhage, or from the effusion taking place in a vital part.

It is this disease which at one time was so common in our navy, and was described under the name of scorbutus (*purpura nautica*), and which is found to prevail from time to time among masses of people congregated in unhealthy localities, and subjected to vicissitudes of temperature, particularly a cold and damp atmosphere, with bad and insufficient food, imperfect ventilation, exhausting fatigue or deficient exercise, or a too prolonged use of salt provisions, and which is so effectually remedied and prevented by the reverse of these conditions, namely, a dry atmosphere, good ventilation, good, fresh, and sufficient food, and proper exercise and cleanliness. The general symptoms of sea scurvy are exactly similar to those described under the head of land scurvy and *purpura hæmorrhagica*, but often assume an exaggerated character. There is more physical prostration, the skin is pale and discoloured, the vibices are larger, the gums more spongy and bleeding, the breath very offensive, the excretions both from the bladder and bowels fetid, the pulse weak and feeble, syncope frequent, hæmorrhages more copious and general, and death a more common finale of the disorder. On the other hand, it has been observed, in sea scurvy, that the physical depression is greater than that of the mind, that the latter is bright and vigorous to the last, and that the body dies suddenly from efforts made in obedience to the command of the will.

PURPURA URTICANS commences with round elevations of a whitish or pale colour, sometimes reddish, which resemble the rounded wheals of nettle-rash; but there is generally less irritation and less pruritus, and the wheals are less evanescent. When of a reddish hue, they have seemed to belong rather to *erythema tuberosum* than to *urticaria*; they are somewhat elevated, generally well-defined, and soon become purple and livid, after which they subside slowly, leaving

behind them brownish-yellow stains ; as they are successive in eruption, they may be seen in all their stages at the same moment. They occur, for the most part, on the lower limbs, and are commonly attended with some degree of œdema. We have seen purpura urticans most frequently in female servants, in whom it has been associated with uterine disturbance ; in similar cases, in fact, to those in which erythema tuberosum is apt to be found ; and we have also seen it associated with eczema in a person of gouty diathesis and intemperate habits.

PURPURA SENILIS is not very infrequent in elderly women, particularly in those whose arms have been much exposed to local irritants of different kinds, such as the sun's rays, water, &c., and is always to be met with in our workhouses. It is associated with a preternatural degree of thinness of the integument, which is embrowned, yellowish, and mottled, being sometimes smooth and sometimes rigid and wrinkled.

"It appears," says Bateman, "principally along the outside of the forearm, in successive dark purple blotches of an irregular form and various magnitude. Each of these continues from a week to ten or twelve days, when the extravasated blood is absorbed. A constant series of these ecchymoses had appeared in one case during ten years, and in others for a shorter period ; but in all, the skin of the arms was left of a brown colour." The general health is in no wise affected, and the patient suffers no inconvenience beyond that of the unsightly appearance of the blotches.

DIAGNOSIS.—The purple and livid colour of the spots ; the blood being not in the vessels, but extravasated in the tissue of the skin ; and the persistence of the spots under pressure with the finger, are the distinguishing signs of purpura. The purple and discoloured stains which follow some forms of roseola, and the purple pimples of lichen lividus, are distinguished by their connection with a distinct

roseolous eruption on the one hand, and a papulous eruption on the other.

CAUSE.—The cause of purpura is cachexia resulting from mal-assimilation; the mal-assimilation being one while the effect of generally depressing causes, whether physical or mental; another while the effect of improper or insufficient food, malarious atmosphere, excessive fatigue, defective ventilation, neglect of exercise and habits of cleanliness; or, again, it may be the consequence of some organic disease, of local weakening of the tissues, as in anasarca; or of general and local weakening, as in old age. The severity or violence of the cause may be very different in different constitutions; in some, purpura is easily induced, and the affection is unimportant; in others, the system of the individual only yields when overpowered, and the disease is therefore grave.

PROGNOSIS.—Purpura may be trifling or serious, according to the nature of the cause, the constitution of the individual, and the violence of the disease. Purpura simplex is not very important; but purpura hæmorrhagica is always serious, in consequence of its complication with internal hæmorrhage, which may take place in a vital organ, as in the lungs, and prove suddenly fatal.

TREATMENT.—Originating in debility, our treatment must be strengthening in its operation. It may be necessary at first to regulate the digestive organs and secretions; and when this is effected, we must have recourse to tonics, such as bark with sulphuric acid, the citrate of iron and quinine, or the nitro-muriatic acid with bitters.

The diet should be generous but moderate, and consist of meat and wine, to which, in sea scurvy, we may add lemon-juice and potatoes, with a proper allowance of malt or spruce beer.

Locally, benefit may be obtained from the use of tepid baths, with the free use of the juniper-tar soap. Moderate

stimulation of the skin may also be attempted by means of lotions containing the sesquicarbonate of ammonia, or the bichloride of mercury with the emulsion of bitter almonds. These latter applications are especially suitable in the urticating form of the disease.

CHAPTER X.

DEVELOPMENTAL AND NUTRITIVE AFFECTIONS.

UNDER this head we have assembled some important alterations of structure of the skin, alterations which are not the result of inflammatory action, but which are nevertheless equally grave in their tendency to determine disease of the cutaneous organ. The terms *defect of development* and *defect of nutrition*, taken in their widest sense, express the fundamental cause out of which these affections have their origin; and if we assume a series of conditions precisely opposite to those of health, we shall then have before us the leading features of these diseases.

Thus, if we assume the skin to be entirely abnormal in its character, to be dry, hard, thin, inelastic, brittle, discoloured, rough, scaly, and in parts too small for the body it has to contain, we shall then have a fair word-picture of a state of disease to which we give the name of *xeroderma*, or dry skin (*ξηρος*, *aridus*). If, in the next place, we regard only the surface, and look upon an epidermis which is rough, uneven, sordid, broken up into ragged plates, or into smaller fractions corresponding with the *areæ* of the lines of motion of the skin, we shall then have suggested to us the idea conveyed by the term *ichthyosis* (*ιχθυα*, *fish-skin*), a scaly covering like that of a fish. If, in addition to these two conditions, we suppose an altered state of the sebiparous function, and an accumulation of the sebaceous substance on the skin in the form of dark grey or greenish scales or spines, suggesting the idea of the coat of a lizard

(*σαυρος*), we then have a form of the affection to which we have attached the term *sauriosis*. Or if, instead of the extreme degree of abnormality indicated by these terms, we have before us a skin which is less dry, less hard, but equally or even more discoloured, that is, sordid, or, in other words, apt to the accumulation of concretions of the exuviae of the sebaceous and epidermic matter on the surface, which has originated in a previously healthy skin, and which has come on by degrees, which is, in fact, a disease, and has originated out of morbid causes, we shall then have a state which we have denominated *cachexia cutis*.

The diseases included under this head are, therefore, four in number:—

Xeroderma simplex	|	Xeroderma saurioides
„ ichthyoides	|	Cachexia cutis

XERODERMA.

XERODERMA is congenital; it presents the appearance of a dry, impoverished, discoloured, ill-developed, and ill-nourished skin. In a young child possessing such a skin, we may find, instead of the smooth, pliant, elastic, fresh, healthy pellicle of infancy, the dry, wrinkled, tough, and discoloured skin of extreme old age. We see at a glance defect of development and defect of nutrition. The characters of the disease are too obvious to be mistaken. The defect of development and growth of the skin is often curiously manifest on the face, where the skin appears to be too small for the features. The eyelids are insufficiently large; the nose looks pinched; and the skin is stretched across the cheeks. It is equally exhibited on the hands and on the feet; the bones have grown faster than the skin; the fingers look contracted, and the knuckles of the

metacarpo-phalangeal articulation crop up in what should be the middle of the back of the hand. The same singular want of relation between the substance and the envelope is seen in the feet. On other parts of the body, as on the neck, the skin forms wrinkles, from its hardness and want of elasticity; and on the upper arms and legs hangs loosely about the limb, from the total absence of fat in the sub-cutaneous cellular tissue. Another peculiarity is observed in the palms of the hands, where the skin is thick, dense, and rigid, dry to the touch, and deeply marked by the lines of motion; and the nails are very generally brittle and imperfect.

The colour of the skin is a greyish yellow, which gives it a dirty look that no washing will remove; and the scarlet tint of the arterial blood seen through the more vascular parts of the skin, as of the face, has a strangely dull and unnatural appearance.

The epidermis necessarily participates in the abnormal state; besides being discoloured, it is imperfectly elaborated; it is inelastic and fragile, and breaks up into segments of various size and shape; the size of the broken particles being in some measure dependent on the organization of the cuticle, and in some measure upon the distribution of the lines of motion of the part. On the scalp the detrita of the epidermis are furfuraceous, as is common in that situation; on the face and cheeks the cuticle exuviates in thin plates, and the surface is roughened with the ragged edges of these plates; behind the ears, on the eyelids, around the mouth, upon the neck, over the front of the chest and trunk, and in the bends of the joints, the exuviation is farinaceous; on the limbs and back the cuticle is broken up into polygonal scales; and on the palm of the hands and sole of the feet it is thrown off in plates of considerable extent.

These various appearances assumed by the epidermis in the exuviation of its superficial layers, varieties that admit

of a simple physiological explanation, have suggested an equal number of distinguishing terms. Thus the squamous form of marking of the epidermis gave origin to the specific term *Ichthyosis*, and the varieties of *ichthyosis*, according to different authors, are numerous; for example, the branny and mealy exfoliation of the cuticle, as seen on the head and neck, and flexures of the joints, is an *ichthyosis furfuracea* and *farinacea*. The net-like tracery of the lines of motion, marked by a white ragged edge, and usually seen upon the legs, has originated the term *ichthyosis reticulata*; the areae of these same lines, usually smooth and glossy, have given rise to the term *ichthyosis nitida*; and a certain nacreous translucency of the same areae is the ground of a nacreous variety (*ichthyose nacrée*) admitted by Alibert.

The modifications in the form of the scales of *xeroderma ichthyoides* are referrible, as we have seen, to those anatomical relations of the epidermis to the corium that we have already studied in the first chapter of this book; and we may, by a careful inspection of the surface of the skin in a state of health, predict the form and arrangement of its elements in a state of disease. In the minute subdivision of the surface by the lines of motion on the eyelids, on the front of the neck, and the flexures of the joints, we see a contrivance for the production of a powdery or farinaceous desquamation; in the smooth interstices between the hair-follicles of the scalp, we see the mould of the *furfuraceous* scales which it casts off in such great abundance. On the legs we see the broader areae, that are sometimes rough and dirty, and sometimes glossy and silvery in hue; in other parts we find small polygonal beds, that create a scale which is small and thick; is apt to adhere very firmly, and to be cast seldomer than in other situations: such parts are the abdomen, the inside of the thighs, and the convexities of the joints; and these smaller, harder, thicker, and generally dirty scales, have suggested the idea of a serpent's skin—*ichthyosis serpentina*.

The history of xeroderma and ichthyosis is a narrative of a general degradation of structure of the skin, in which all the tissues participate; the corium is hard and thin, and ill-nourished; not unfrequently, in the hands and feet, breaking into deep fissures; the cuticle and the nails are imperfectly formed and brittle, and the former prone to break up into scales; and the glands of the skin are equally involved in abnormal action. Not unfrequently there is a total absence of perspiration, or only a partial perspiration; and sometimes the sebiparous glands fail in their function completely, or, continuing to secrete, produce a sebaceous matter, which is altogether altered in its quality from the ordinary standard. Instead of flowing forth upon the skin and becoming lost, it seems to become blended with the cuticle, to inspissate and to dry up into horny masses, which go on increasing in size until they attain a considerable length.

We are thus introduced to a new form of ichthyosis, one in which the sebaceous substance plays a conspicuous part, and one which presents characters so widely different from epidermic ichthyosis as to deserve a different designation. The disease in question is a sebaceous ichthyosis, and as the sebaceous matter dries up into a kind of horn, we may also term it *horny ichthyosis*, *ichthyosis sebacea cornea*.

Horny ichthyosis, like epidermic ichthyosis, is dependent on the organic state of alteration of the skin that we have previously termed xeroderma; and the abnormal skin may remain stationary in its xerodermatous form; or it may become an ichthyoid desquamation; or it may assume the characters of the form of disease at present under consideration, namely, a corneous ichthyosis; or, and not improbably, the whole of these forms may be present together on different parts of the surface; on one part we may find simple xeroderma; in another, squamous ichthyosis; and in a third, as upon the abdomen, the inside of the thighs, and around the joints, the character of the affection may be an ichthyosis cornea.

The sebaceous substance poured out upon the surface of the skin adheres to the epidermis with considerable tenacity; so much so, that an attempt to pick off one of the scales generally results in tearing the cuticle and producing an excoriation. At its escape from the sebiferous ducts, it is a greasy paste of a white colour, speedily becoming grey and brown in colour, and is moulded into a scale-like shape by the form of the little area to which it adheres, and by the mutual pressure of similar concretions, occupying neighbouring areas. This peculiarity is the more conspicuous when the scale, by constant addition to its surface and growth from below, assumes a more considerable length, and is converted into a spine. The spines may attain a length of a quarter or half an inch, are uniform in height, rounded at the angles, and have a rounded base.

Ichthyosis sebacea, from the nature of its growth, presents two varieties. In the one, the concretion never exceeds the dimensions of a pretty thick scale, this is *ichthyosis sebacea squamosa*; while in the other the scales go on increasing in length until they acquire the character of spines, this latter is *ichthyosis sebacea spinosa*. The general appearance of ichthyosis sebacea, as compared with ichthyosis epidermidis; its thick and convex scales, firm and horny, of a greenish-brown colour, and uniform in dimensions, is such as to suggest the skin of a saurian reptile; for example, of a lizard rather than a fish; and with this view, we have termed it "sauriderma:" *sauriderma squamosum* and *sauriderma spinosum*.

There are no constitutional symptoms belonging to xeroderma ichthyosis and sauriosis; they are purely local in their nature, dependent on congenital mal-development and subsequent mal-nutrition.

XERODERMA SIMPLEX.—This term is reserved for the milder form of the affection, in which the all-pervading dryness of the skin, with constant desquamation, is the predominating character, a state that hardly deserves to

be distinguished by the term *ichthyosis*, but which by neglect might degenerate into that disease. *Ichthyosis*, in its progress towards cure, passes through the stage of *xeroderma*, and a cured *ichthyosis* not unfrequently presents the characters of *xeroderma* for the rest of life.

The signs of *xeroderma* are, a dry and parched state of the skin of the whole body, especially remarkable in the hands ; the backs of the hands being dry and wrinkled, the palms thick and hard ; a dryness and roughness, and often a glossiness of the face, and sometimes a seeming greasiness of the surface. The hair is usually scanty ; the person is thin ; there is commonly an absence of perspiration ; and the pulse is apt to be unnaturally quickened by violent or rapid muscular action. The appearance of the skin is not very unlike that which succeeds to *eczema infantile* ; the chief difference being the absence of the disproportionate growth of the skin to that of the body which it invests, and particularly the hands and feet, in *xeroderma*.

XERODERMA ICHTHYOIDES, or *ichthyosis vera*, is known by the squamous forms assumed by the exfoliating and desquamating epidermis. The epidermis has a greyish or dirty tint ; it is more or less broken up into polygonal scales, corresponding with the size and form of the *areae* bounded by the lines of motion of the skin ; the lines of motion are ragged ; and in the hands and feet the *corium* is apt to split in the course of these lines.

The general symptoms of thinness of the person ; a deficiency of perspiratory and sebaceous secretion ; and a tendency to irritability of the heart's action, are the same as in *xeroderma simplex*.

XERODERMA SAURIOIDES, or *ichthyosis spuria*, is a *xeroderma*, in which, besides the ordinary symptoms appertaining to that disease, there is also an accumulation of sebaceous substance on the surface of the skin, the sebaceous substance undergoing inspissation by desiccation, and one while assum-

ing the form of scales, *sauriderma squamosum*; and another while of spines, *sauriderma spinosum*.

SAURIDERMA SQUAMOSUM, when congenital in its origin, is a general affection; and when it does not present the squamous form, the state of skin constituting xeroderma is present. Sometimes, however, it is accidental in its development, and partial in its manifestation. The squamæ are most abundantly developed on the abdomen; on the thin skin of the inside and front of the thighs; on the inside of the arms; on the flexures of the limbs, and on the neck.

The accidental form of *sauriderma squamosum* is commonly met with in elderly persons, and is developed on the face; usually on the cheeks, and sometimes on the temples or on the side of the nose. It is a concretion of sebaceous substance, of a dark grey colour, hard, and closely adherent to the skin; generally implanted on a patch of congested skin, and leaving an excoriation when removed with force. These inflamed spots are generally obstinate, and indisposed to take on a curative action.

SAURIDERMA SPINOSUM, or ichthyosis sebacea spinosa, is a form of the affection in which the scales grow to a considerable length, and are termed spines; the disorder being named in consequence, the *porcupine disease*. The spines are developed more or less generally over the surface of the body, and are sometimes partial, being limited to the region of the joints.

Willan has pointed out two appearances which the local forms of this disease sometimes present, and distinguished them by the name of ichthyosis cornea. In one of these the spines are curved or twisted, and unusually long, and suggest the idea of miniature ram's horns; in the other the spine is broad and single, and constitutes a horn-like mass. These peculiarities are rare, and no purpose is gained by their separation from the typical disorder.

CACHEXIA CUTIS is a state of the skin which is common to every period of life, but which we have met with most frequently in young women. It occurs for the most part in the face; the skin loses its colour and its freshness; becomes thin and discoloured, and resembles parchment or leather rather than living integument. In two cases which have recently come before us, two ladies of the age of twenty and twenty-five, one originated in a state of cachexia induced by disorder of the womb, and the other in defective nutrition of the skin, the sequel of typhoid fever.

DIAGNOSIS.—The only disease with which xeroderma can be confounded is eczema squamosum, or the dry, harsh, and thickened state of the skin which sometimes follows eczema infantile. Ichthyosis and sauriosis are unlike any other affections, and totally dissimilar to the desquamation of inflammatory affections of the skin. Sauriderma squamosum of the face we have known to be mistaken for a malignant disease.

CAUSE.—The cause of xeroderma and its allies is a special debility of the skin, originating probably in general debility. These affections are congenital, and frequently hereditary. In a family of four children born in India, two are the subject of xeroderma, and the other two are free. In these children the disease was congenital and idiopathic.

PROGNOSIS.—As a modification of development and nutrition rather than a disease, these disorders are free from any danger, and admit of being greatly improved by proper treatment, if not wholly cured.

TREATMENT.—The treatment of xeroderma and cachexia cutis is to strengthen the skin by moderate stimulation, applied both externally and internally; externally by local means, and internally by the judicious and careful administration of arsenic.

The *local* remedies are, ablutions with the juniper-tar

soap; the Turkish bath, when it can be obtained conveniently; and anointing the skin thoroughly with neat's-foot oil or benzoated lard after the ablution or bath. As the cure advances, some mild stimulus may be added to the local remedy. By the aid of a few washings and a few baths, all the scales and sordes can be removed from the skin, and it is not difficult afterwards to keep them in subjection.

In the *sauriderma squamosum* of the face of elderly persons, the squamæ should be removed in the first instance with the help of the starch or arrowroot poultice. The juniper-tar soap should be used twice in the day, and a mild stimulating ointment after the ablutions. The best ointment for this purpose is one of the ammonio-chloride of mercury (one part to three of lard), with ten grains of camphor to the ounce; or, if a lotion be preferred, the bichloride of mercury in emulsion of bitter almonds will be found of service.

For the *cachexia cutis*, ablutions with the juniper-tar soap, a lotion of the bichloride of mercury in emulsion of bitter almonds, and the internal administration of arsenic, is the proper treatment. The resort to arsenic presupposes that all the usual indications of regulation of the digestive organs and secretions have been attended to, in addition to any special indications belonging to the particular case.

CHAPTER XI.

HYPERTROPHIC AND ATROPHIC AFFECTIONS.

BY hypertrophic and atrophic affections, we mean, on the one hand, enlargements of the skin resulting from superabundant growth, and the opposite condition to this, namely wasting of the skin. Hypertrophic affections are illustrated by the common tegumentary mole, *nævus hypertrophicus*; by *ecphymata* or excrescences of the skin, a group which includes tegumentary molluscum, verruca, and clavus; by an abnormal growth of the fibrous tissue of the skin, *kelis*; and by excessive growth of the integument and subcutaneous tissues, constituting *bucnemia tropica*, or *Barbadoes leg*. We may enumerate them as follows:—

Nævus hypertrophicus	|	Kelis
Ecphyma	|	Bucnemia tropica

NÆVUS HYPERTROPHICUS.

NÆVUS HYPERTROPHICUS, or common tegumentary mole, is for the most part congenital, but is occasionally developed at a later period of life. It is a simple enlargement of a portion of the skin, with an increase in some instances of one or other of its component tissues, but without any morbid alteration. In one form of the affection the hypertrophy extends to all the tissues of the integument without distinction, and we have as the result a simple prominence of the skin of small extent, and usually circular in its form; this is the *nævus hypertrophicus vulgaris*. In

another instance, besides simple enlargement of the integument, there is an increase in the quantity of the pigment of the part, rendering it brown or more or less black on the summit, this is *nævus hypertrophicus pigmentosus*; and a third form is distinguished by a growth of hair from the part more or less considerable, this is the *nævus hypertrophicus pilosus*.

The forms of *nævus hypertrophicus* may be stated therefore as follows :—

Nævus hypertrophicus vulgaris		
”	”	pigmentosus
”	”	pilosus

NÆVUS HYPERTROPHICUS VULGARIS is a tegumentary prominence of the skin, of circular figure, bald and smooth, and not distinguishable in colour from the surrounding skin : it is most commonly met with on the face and on the back.

NÆVUS HYPERTROPHICUS PIGMENTOSUS, or *spilus*, is commonly less prominent than *nævus vulgaris*, and is remarkable for its colour as compared with the surrounding skin. With increased energy of growth of the affected spot, there is also a more energetic production of pigment, which varies in tint of colour from a yellowish brown to a deep black. Pigmentary *nævi* or *spili* are generally of small size, and circular in form ; at other times they are large and irregular in figure, and occasionally have been known to cover one half the face, or a considerable portion of the trunk or limbs. They are most frequently met with on the face, and next in frequency on the back.

NÆVUS HYPERTROPHICUS PILOSUS is a prominence of the integument of a similar character to *nævus vulgaris*, but covered by a growth of short and stiff hairs, sometimes of considerable length, and associated with an increased production of pigment in the rete mucosum. *Pilous nævi*

are met with on all parts of the skin which are normally organized for the growth of hair, and are only constantly absent in the palm of the hands and sole of the feet. We see them often on the face as a single small prominence covered with hair; sometimes there are more than one, and they are not unfrequently intermingled with *nævi pigmentosi*; at other times they occur on the trunk of the body or limbs in single patches of considerable extent, or as numerous patches dispersed over the skin. Alibert records the case of a young lady whose skin was studded, over nearly every part of the body, with moles of a deep-black colour, from which a long, black, thick, and harsh woolly hair was produced. Villermé, in his article on the hair, in the *Dictionnaire des Sciences Médicales*, observes, "I saw at Poitiers, in 1808, a poor child between six and eight years of age, that had a great number of mother's-marks disposed in brown projecting patches of different dimensions, scattered over various parts of the body, with the exception of the feet and hands. The spots were covered with hair, shorter, and not quite so thick as the bristles of a wild boar, but presenting considerable analogy with them. This hairy covering, with the spots upon which they grew, occupied perhaps one-fifth of the surface of the body."

CAUSE.—Tegumentary *nævi* are for the most part congenital, and sometimes hereditary; and we must regard their origin as being physiological rather than pathological. Like vascular *nævi* they are termed mother's-marks, from the popular belief in their dependence on the imagination of the mother during pregnancy. Daniel Turner records the case of a girl who "was born all over hairy, from the mother's unhappy ruminating and often beholding the picture of St. John the Baptist hanging by her bedside, drawn in his hairy vesture." And, on questioning a boy as to a *nævus pilosus* of some size on the side of the jaw, he informed us that the patch represented a sucking pig that his mother had longed for during her pregnancy.

TREATMENT.—We are sometimes consulted as to the removal of tegumentary nævi, not on account of any inconvenience attending them, but on the ground of their occasioning deformity. They are easily removed by the knife, care being taken to direct the incisions in the line of the ordinary folds of the skin. But we prefer to effect their destruction with the potassa fusa. A point of potassa fusa is introduced into the centre of the nævus, it diffuses itself through the cellular mass; the disorganized tissue dries up into a scab, and falls off in ten or fourteen days, leaving very little trace of its existence. This method of treatment is alone applicable to nævi of small size: when of considerable extent, they are beyond the control either of knife or caustic.

ECPHYMA.

ECPHYMA, from ἐκφύειν, *educere*, signifies a growth or excrescence. Mason Good, to whom we are indebted for the term, applies it very aptly to those excrescences of the skin which are commonly termed *warts* and *corns*, and defines it to be “a superficial, permanent, indolent ex-tuberance, mostly circumscribed.” We adopt it in this sense, and establish it as a genus having several species; for example:—

Ecphyma mollusciforme	|	Ecphyma verruca
„ acrochordon	|	„ clavus

ECPHYMA MOLLUSCIFORME is a prominence of skin produced by simple growth of the integument; it in no wise differs in colour or general appearance from the surrounding skin, is more or less pedunculated, but sometimes sessile; attains a size varying between a pea and a walnut, or pigeon's egg; is slow in its growth, and is more or less flabby

to the touch, in consequence of the laxity of its cellular structure.

This is the disease which, with other growths of a different nature, has been termed "molluscum," and to this form of tegumentary tumour the term is more applicable than to the glandular disorder which at present retains that name. It is soft to the touch, because its structure is a loose cellular tissue, inclosed in a covering of attenuated corium ; it sometimes has the appearance of being lobulated or puckered on the surface ; sometimes it looks dirty from the presence of black pigment, and occasionally it is studded with a few short hairs.

It would seem to partake in some measure of the structure of tegumentary nævus ; but it differs from the latter in not being congenital ; in its occurrence in elderly persons, or after the mid-period of life ; in its dependence upon a weak and unhealthy condition of the skin ; and in the want of hardness and resistance. Taken between the fingers, it gives the idea of a loose bag of integument, the looseness of the contained cellular tissue permitting of the inner walls being rolled upon each other.

This form of ecphyma is met with chiefly in elderly persons, and on the neck, the back, the chest, and other parts of the trunk, but rarely on the limbs. It is easily and safely removed by snipping with the scissors, or by ligature. When neglected, we have seen it become the seat of a painful excoriation and ulceration.

ECPHYMA ACROCHORDON, or pedunculate wart (*verruca acrochordon*), is a diminutive form of the preceding not uncommonly met with on the neck and trunk of the body in adults, but more frequently in elderly persons. It has the appearance of a small pendulous bag of integument, and in some instances appears to be formed by the expulsion of the hardened gland from a small tubercle of molluscum vulgare. It is not usually solitary like ecphyma mollusci-forme, but is frequently sprinkled over the neck so as to

form a small crop that might be mistaken for some form of lichen, but for the absence of all trace of redness and the pendulous figure of the little bulbous mass.

EcpHYMA acrochordon is a disease of an unhealthy and ill-nourished skin, and is due to want of tone and vigour in the cutaneous tissues.

ECPHYMA VERRUCA.

VERRUCA is a small hard tubercle resulting from excessive growth of certain of the papillæ of the skin, accompanied with a proportionate increase of the epidermis. The largest of the verrucæ are met with on the hands and feet, where the cutaneous papillæ are of greater length than elsewhere, and the epidermis thicker. In this situation they rarely exceed the dimensions of a split pea, while on other parts of the skin they are considerably smaller and less prominent.

In structure, a verruca is composed of a cluster of enlarged papillæ covered with a little mound of epidermis; the number of the papillæ determining the breadth of the tubercle, their length its height. Warts are circular in figure, and when of small size, as upon the body generally, are smooth on the surface; but when of considerable bulk, as upon the hands and fingers, the summit is apt to be worn off, is rough and discoloured, and resembles the extremity of a bundle of fibres, surrounded by a collar of thickened epidermis. This, in fact, is the real structure of a large wart, the hypertrophied papillæ acting separately and producing each for itself a sheath of epidermis. The cuticular formation above the heads of the papillæ is necessarily composed of these vertical sheaths, converted into solid fibres in their growth, and adherent to adjoining sheaths, while the epidermis around the base of the wart, generally somewhat thickened,

acts as the collar which holds all these sheaths or fibres together.

A section of the wart exhibits the structure above described very clearly, and if we make transverse sections of the summit, we bring it more distinctly into view. These sections also show that the papillæ are unequal in length, for in successive sections we shall cut across at first one and then several papillæ, until, as we proceed more deeply, we find the section evenly studded all over with the bleeding ends of divided papillæ. A similar demonstration of the fibrous structure of a wart is afforded by watching the progress of a chronic wart of large size. At first the summit is rugged and composed of isolated particles, the ends of the fibres, in popular language, for popular observation is often in advance of science, termed the *seeds* of the wart; the verruca in question being a "seedy wart." In the next place, the wart is apt to split in the direction of these vertical fibres, sometimes into two or more portions; and then we have what has been termed a lobulated wart, *verruca lobosa*, and popularly, a bleeding wart.

Warts are developed most frequently on the hands, next on the wrists, the forehead, the scalp, and the trunk of the body, and are more common in young and aged persons than in the adult. In children they are found usually on the hands and fingers, and on young persons after puberty are met with on other parts of the body.

Occasionally we meet with what may be termed an eruption of warts, a crop consisting of fifty or a hundred, or several hundred small warts, clustered closely together. An eruption of this sort not unfrequently takes place on the forehead, near the margin of the scalp, and on the temples. We have seen it also on the back of the wrists, extending for a short distance upon the forearms, and upon the dorsum of the hands. Lately, we had before us a little girl, in whom there existed a patch of closely-set verrucæ, which commenced on the back of the shoulder and upper arm, and

extended downwards upon the back, widening as it progressed, to the lower part of the thorax. Rayer quotes from M. Rennes another instance of a crop of warts of considerable extent; "a band of agglomerated warts, from eight lines to an inch in breadth, extended from the upper and anterior part of the right side of the breast, underneath the clavicle, along the arm and fore-arm of the same side, till it reached the carpus, where it increased considerably in breadth, and finally overspread the whole palm of the hand."

The common wart, *verruca vulgaris*; the small and confluent warts, *verrucae minimae*, *verrucae confluentes*; and the fibrous and the lobulated warts, *verrucae fibrosae* and *verrucae lobosae*, have been termed sessile warts, *verrucae sessiles*, in order to distinguish them from the *verruca acrochordon* or pedunculate wart; but we have shown in the preceding section that the *acrochordon* is a growth of the integument, without increase of dimensions of the papillae and epidermis, a little soft and pendulous bag of skin, and totally different in every particular, excepting that of being an excrescence of the skin, from *verruca*; and we have therefore grouped it more in accordance with its special characters, with *ecphyma mollusciforme*.

We have sometimes seen a filiform kind of wart, *verruca filiformis*, which appears to originate in hypertrophy of a single papilla of the skin, or perhaps of a fasciculus of three or four papillae. Rayer compares a patch of these *verrucae* very aptly to "coarse plush."

There remains, however, to be considered another form of wart, first described, we believe, by ourselves; namely, *verruca digitata*. This wart is by no means uncommon; it is met with on the scalp, and sometimes exists in that situation in considerable number. Fixed on the skin of the head, and throwing out on all sides its pale, finger-like papillae, it may be mistaken for an insect, until its fixed adhesion to the skin and immobility prove the contrary.

Sometimes the digitated wart is single, or a few only are met with; at other times, they are so numerous as to act as an impediment to combing the head. They may be small, consisting of two or three digitated papillæ only, or large, forming a tuft of hypertrophous papillæ of considerable size. They are longer than ordinary warts, and commonly range from two to four lines in height.

The *diagnosis* of verruca, after the above description, will not be difficult to determine; the only form of affection with which it is likely to be confounded being the smaller molluscous ecchymata and acrochordon.

The *cause* of verrucæ is an abnormal nutrition of the skin, sometimes determined, apparently, by superabundant energy of growth operating upon a sound skin, and sometimes upon a weak and impoverished skin, as in elderly persons.

The *prognosis* is favourable. Verruca is an inconvenience rather than a disease; at its worst it is a deformity; and is not difficult of cure even in its most extended shape.

TREATMENT.—The best application for the removal of isolated warts is the potassa fusa; and it is also the most suitable remedy for the verrucæ digitatæ of the scalp. If caustic potash be objected to, any of the strong acids may be employed, and especially the acidum aceticum fortius. The potassa fusa destroys the wart at one application; the acids require to be used at short intervals for a certain period of time.

When warts are general in their eruption, a constitutional treatment may be called for, and arsenic will be found remarkably successful in their dispersion; indeed, in certain cases, is the only certain means of cure. In these general cases, the constitutional remedy may be aided by painting the eruption with the compound tincture of iodine, or sponging with a moderately strong lotion of the bichloride of mercury.

ECPHYMA CLAVUS.

CLAVUS is an increased thickness or hypertrophy of the epidermis, generally situated on a prominent part of the body, for example, the joint of a toe, and due to an inflammatory congestion of the skin, the result of pressure or friction.

Corns may be developed on any part of the body where pressure and friction exist to an inordinate degree; thus they may be occasioned by too tight or too loose a shoe; in the one case being due to pressure, in the other to friction; and they are most actively produced when both these causes are combined. They are met with the most frequently on the feet, on account of the unpliant nature of the coverings of those organs; between the toes from pressure only; and on other parts of the body from distortion, or local pressure, induced by different exercises, occupations, or trades.

The first effect of pressure and friction of a portion of skin interposed between the prominence of a bone and another resisting body, such as a shoe, is soreness and tenderness; to this state follows a larger afflux of blood than natural, causing congestion: with congestion carried to a moderate degree, there is a more energetic nutrition of the corium, and a more active cell-formation, operating in the production of cuticle. We have, therefore, before us, the process of construction of a corn, or rather, of a callus or callosity, in all its details; namely, pressure, congestion, and increased formation of epidermis. The kind of corn so produced is a *laminated corn*, or *callus*. There is no alteration in the texture of the epidermis, and no alteration in the corium beyond vascular congestion, the result of a moderate degree of inflammation. In a callus, the epidermis will sometimes acquire a very considerable degree of thickness, and, as may be inferred, the increased thickness will

contribute to the aggravation of the real evil rather than to its alleviation; the corium beneath the callus is subject to increase of inflammation from time to time, when more than the usual amount of pressure is exerted, or where it is continued for a longer period; and not unfrequently an effusion of blood takes place from the bruised surface. In making a section of such a callus, the epidermis is found to be streaked with different tints of colour, produced by layers of blood effused from time to time, and fading in hue as they advance in age; and the laminated structure of the callus is self-evident.

The callus occupies a surface of considerable extent, and produces a certain uniformity of pressure on the congested corium; hence it is more bearable than if its size were smaller, and the pressure consequently less diffused. But, besides the callus, we have also produced by the causes above mentioned, a thickening of the epidermis of a more limited extent, and a new series of pathological phenomena are set up: the pressure of the thickened mass of cuticle on the tender and inflamed corium at a given point produces a depression; the continuance of the pressure gives rise to absorption of the corium, and very soon the plane surface of the corium is converted into a cup or crater. The thickened mass of cuticle is pressed into this cup, and is pointed or blunt in proportion to the breadth and depth of the cup, reminding us of a nail (*clavus*) inserted into the skin; hence the scientific designation of the disease.

The new position of the formative organ of the epidermis, namely, the corium, occasions an alteration in the direction of the strata of the epidermis. The strata formed within the cup assume naturally the cup shape, and as they rise to the surface present the broken edges of a cup, with a small central mass or nucleus (the eye of the corn), suggesting the idea of vertical fibres rising to the surface, and the ruggedness is increased by the broken edge of the epidermis that corresponds with the border of the cup. The

fibrous appearance of the centre of the clavus has suggested the idea of roots ; and the central cup-formed mass of hard and condensed cuticle has been regarded as the core of the corn. The notion of a nail driven into the flesh is not so remarkable, if we contemplate the constant pressure of this sharp point into a bed of tender and inflamed corium, as must necessarily happen in the act of walking ; and we perceive also the principle on which the chiropodist operates in digging out the corn.

A survey of the process by which the growth into the skin is accomplished by the clavus will explain to us other phenomena that are apt to take place in a foot that is invaded by this troublesome disorder. Subcutaneous bursæ are apt to inflame, giving rise to *bunion* ; the heads of bones become enlarged, from extension of inflammation to the fibrous tissues of the joint ; the bed of the clavus often suppurates ; and sometimes the ulceration proceeds so deeply as to perforate the joints of the toes, or produce absorption of the heads of the bones.

There is one form of clavus, called the *soft corn*, which is intermediate in its characters between the callus and the common corn. Like callus, it makes no projection superficially ; and like clavus, it grows inwards to a considerable depth, producing absorption of the corium, and often suppuration. The soft corn is situated between the toes, and results from the pressure of the joint of one toe against a point of skin of the opposite toe ; sometimes the corn is formed on the side corresponding with the offending joint, and sometimes on both. Constantly moistened with the perspiration taking place between the toes, the thickened cuticle is commonly white and sodden, hence its name, *soft corn* ; and the softening is not unfrequently increased by a serous effusion which takes place from the surface of its cup. The cup is converted into a kind of vascular mucous membrane, and continues to secrete an albuminous fluid for many months. Sometimes the thickened epidermis is per-

forated in the centre, and the effusion issues through the aperture ; and sometimes the corium of the inflamed cup takes on to suppurate. Soft corns are always peculiarly painful, and we have known them give rise to deep and obstinate ulcerations, and produce caries of the bone.

The *diagnosis*, the *cause*, and the *prognosis* of corns may be gathered from our description of their history and pathology.

TREATMENT.—“Remove the cause” is a favourite dogma of medicine ; but the removal of the cause is not always practicable ; hence we must study how we can best afford relief to these troublesome disorders. Callus may be softened by moisture, as by soaking in warm water ; by the application of a starch or soap poultice ; and being softened, the thickened cuticle may be thinned by scraping with a blunt knife ; or the albuminous epidermis may be dissolved by an alkaline solution and moderate friction. When the thickening has been reduced sufficiently, it may be kept down by daily washing with soap.

Clavus and the soft corn require removal with the knife ; and in effecting this purpose, their mode of formation is to be borne in mind. If the soft corn be of moderate size, a single pinch with a pair of pointed scissors will effect its removal, while the hard callus will require a patient digging with the point of not too sharp a knife. The eye of the corn may always be made visible by rubbing the part with eau de Cologne or spirits of wine, and any remains of the core may be detected in this way, either during or after the operation.

The removal of a callus or of a corn may be very considerably aided by the use of the compound tincture of iodine painted on the swelling. When the corn is painful, this application subdues its sensibility, and it also renders the cuticle dry and friable, and easy of removal by means of a file. Soap and water, so useful to the skin in many ways, are especially serviceable to feet afflicted with

corns, and particularly when there are soft corns. Daily washing with soap, and the subsequent interposition of a piece of cotton wool between the toes, may be considered as a cure for soft corns ; and in these cases the skin may be hardened by sponging with spirits of camphor after the washing. The cotton wool should be removed at night, and this is a good time for the use of the camphorated spirit.

KELIS.

KELIS is a flat tumour of the skin, resulting from hypertrophy of the fibrous tissue of the corium, and producing absorption of its papillary layer. The tumour is composed of a dense mass of fibrous tissue, covered by a thin, semi-transparent and homogeneous layer of rudimentary fibrous tissue similar to that which covers an ordinary cicatrix. In a word, kelis is a degeneration of structure of the corium, the deeper part being converted into a coarse and ligamentous form of fibrous tissue, and the superficial part passing into a rudimentary form of the same tissue.

As the pathological alteration which constitutes kelis begins in the deep layer of the corium and rises gradually to the surface, there is some difference of appearance of the tumours, having reference to their stage of progress. In their early beginning, the papillary or vascular layer of the derma is unscathed, and the growth has the appearance of a deep tumour, while at a late period the disease exactly resembles a cicatrix, but raised above the general level of the skin. In the latter state, which may be regarded as its fully developed and characteristic form, it is of a pinkish-white colour, with an elevation of three or four lines, marked on the surface with ridges formed by fibrous bands and cords, which sometimes radiate at each end from a central ridge, and sometimes constitute a coarse network,

bounded at some parts of its circumference by a rounded and sometimes free border ; at others sinking into the skin by thick processes, which suggest the idea of roots ; the immediate surface being smooth, glossy, soft, and velvety to the touch, semi-transparent, and traversed by small blood-vessels, which pursue a straggling course between the fibrous bands, and dip into the deeper tissues from point to point.

Kelis makes its beginning either as a cylindrical prominence of the thickened and indurated fibrous tissue, *kelis cylindracea*, or as a tubercle. When it appears as a cylindrical prominence, one end of the cylinder is commonly rounded and larger than the other, *kelis clavata*. In its tubercular form, two tubercles very commonly show themselves at the same time, and after a while are united by a ridge, sometimes simple and sometimes nodulated, and so give rise to a tubercle resembling a dumb-bell. At other times the tubercle spreads out into an oval disk, *kelis ovalis*, or, spreading out more irregularly, appears to be implanted by its angles into the deeper portion of the corium, *kelis radiciformis*. This latter conformation has suggested its comparison with a crab.

The spreading kelis occasionally assumes a remarkable figure ; nearly square in its dimensions, it projects at the four angles into a rounded cord, which sinks into the skin like a root, and in general appearance resembles the skin of an animal with outspread legs ; at other times it is not unlike a bird, with head and spreading wings, and tail. By the vulgar, the spreading kelis has been mistaken for a toad half-buried in the skin ; and, with its borders free and overlapping the sound skin sometimes to the extent of an inch, there would appear to be some ground for the popular delusion.

Kelis is sometimes single ; more frequently there are several tumours ; and sometimes a part of the body, such as the breast, is studded by a multitude. The single tumours are most apt to take on the spreading character,

and very frequently they enlarge by uniting with outlying tubercles, and in this manner create the appearance of legs or roots. There are certain situations also which are not only favourable for the development of the tumour, but also for its growth; for example, the region of the sternum. Whether this be attributable to a less active circulation at the middle line, or to the greater preponderance of fibrous tissue at this point, is difficult to say. On the sternum we have seen a kelis measuring nearly four inches in length by three inches in breadth. Another peculiarity of the disease is an absence of the symmetry of distribution that marks so many other affections; it is commonly met with on one side of the body only, and not at all, or in a less degree, upon the other. A lady at present under our care has thirty or forty tubercles on the front of the chest on one side, and none on the other side. A gentleman has a spreading kelis over the lower jaw on one side, but no other tubercle on the rest of the body; and another patient has a single kelis ovalis, or rather rotunda, on the summit of one shoulder.

Kelis is a disease of the adult, and not very uncommon; the proportion to other diseases of the skin being one in two hundred, or one-half per cent. It is pretty equally distributed between the sexes, and is chronic in its nature, commonly lasting a lifetime. We have met with examples which have been in existence without much alteration of character for nearly twenty years.

Kelis has no constitutional symptoms, and its subjects are frequently in the most perfect health. The local symptoms are sometimes very trifling and sometimes severe; in the latter case they are intermittent or occasional, and for the most part excited by warmth of the body and pressure. The symptoms most commonly complained of are, itching, tingling, smarting, burning, stinging, shooting, lancinating, &c., &c. One of our patients was annoyed with a degree of itching which rendered scratching irresistible; and

several have spoken of a burning itching, and of a sensation which they compared to piercing the skin with hot needles.

Kelis is *idiopathic* and *traumatic*; idiopathic when it arises without any previous morbid alteration of the skin; traumatic when it follows an injury and rises upon the cicatrix of a scald or burn, upon that of a boil or strumous ulcer; or, in fact, succeeds any form of lesion of the skin. This difference of origin of the disease has created a distinction into *kelis vera* and *kelis spuria*; but as far as pathology is concerned, these two forms are identical. There is no difference of structure between them; the only difference relating to the amount of destruction of the corium by the injury which has acted as an exciting cause. It would therefore be more practical to abandon the terms "vera" and "spuria," and adopt instead the more correct and intelligible expressions *idiopathica* and *traumatica*. The practical dealing with this disease also suggests the use of the terms *kelis tuberculosa* and *kelis serpens*, the former retaining its tubercular form permanently, the latter taking on the spreading character.

DIAGNOSIS.—Kelis is dissimilar to every other affection: its resemblance to a cicatrix where there has been no previous injury; its elevation; the sensation communicated to the finger, soft on the surface, and like fibro-cartilage more deeply; its manifestly fibrous structure; its scanty supply of blood-vessels; the absence of any tendency to ulcerate; these are its characteristic signs. The tubercular form is recognized by the hardness and whiteness of its little tumours, and the absence of signs of cutaneous cancer, such as dilated veins and enlarged lymphatic glands. The traumatic form is nothing more than the unseemly growth of a cicatrix, a cicatrix which, instead of remaining smooth, throws up ridges and bands and cords of white fibrous tissue, and becomes uneven and ugly. We saw lately a little child that had a traumatic kelis on the hip in the cicatrix of a scald; and the motions

of the limb are considerably impeded by the thickness and rigidity of the injured skin, and will probably remain so for the rest of life.

CAUSE.—The cause of kelis is the development of a normal process in an abnormal position. Its essence is debility, for the change that takes place is one of degradation of structure; it is the accumulation of a lower in the place of a higher form of tissue, of a non-vascular white fibrous tissue, in lieu of the highly organized corium, and the still more highly organized *pars papillaris*. These considerations, it is true, do not help us much to the comprehension of the nature of the cause which determines the abnormal physiological process, but they may help us somewhat in laying a sound basis of treatment.

PROGNOSIS.—Kelis will sometimes undergo absorption and disperse spontaneously; but it must be confessed that this desirable change is very rare; more frequently it preserves a permanent hold on the skin, sometimes passive, at other times active and disposed to spread. Our prognosis as to cure is far from favourable.

TREATMENT.—The treatment of kelis offers the two usual indications, namely, constitutional and local. By constitutional treatment we may hope to modify and strengthen the structure of the skin, and bring about a change similar to that which happens in examples of spontaneous cure. The remedy suited for this purpose is arsenic, and we believe that we have seen very good results follow its use, and that of the *liquor hydriodatis hydrargyri et arsenici*. A protracted course of iodide of potassium or iodide of ammonium, or the bromide of potassium, may also be tried with a fair prospect of success.

Locally, a steadily continued pressure would undoubtedly be beneficial if it could be attained; and frequent pencilling with the *liquor plumbi diacetatis* not only allays irritation, but has seemed in some instances to be of service in contracting the size of the tumour. An ointment of the iodide of lead is also suitable, with the same object.

We may endeavour to disperse it by the application of the compound tincture of iodine, by compresses soaked in a solution of the iodide of potassium or ammonium, or by the use of ointments containing the same salts.

The destruction of the tumours has been attempted with the potassa fusa, but with no good results; and there is always the danger in employing irritant remedies, of their increasing instead of diminishing the evil, by provoking a more rapid spread of the disease. A similar remark applies to operation with the knife; the knife removes the tumour, but it does not remove the diathesis; and there is every probability of the cicatrix of the wound being converted into a keloid growth. Dr. Warren reports a case operated on by the knife in which the disease broke out, not only in the cicatrix left by the wound, but also at the points through which the ligatures had passed; so that, as the result of the operation, there were seven tumours instead of one. Nevertheless, there is the hope that at some period or other of the disease the diathesis may have ceased, and then, if the patient were very desirous for an operation, it might be conscientiously attempted. As a rule, however, the less the tumours of kelis are interfered with the better; and, in some cases, with all the disposition for surgical assistance on the part of the patient, an operation would be useless, in consequence of the extent of surface covered by the tumours.

BUCNEMIA TROPICA.

BUCNEMIA is an hypertrophy of the skin, not limited to one of its parts, as the epidermis, the pars papillaris, or the corium, but involving the entire integument, together with the subcutaneous tissue, and in general the entire cellular tissue of the affected limb. It occurs for the most part in the lower extremities, and not unfrequently in the scrotum,

and, as its name implies, is a disease of hot climates, being met with in the East and West Indies, in China, and in Africa. Its prevalence in one of the West-India islands, Barbadoes, has gained for it the name of the "Barbadoes leg."

Bucnemia attacks the foot, and gradually ascends the leg, until it involves the entire limb; and sometimes it invades both legs. The affected parts grow to a prodigious size; the thick and brawn-like integument overlaps and obliterates the toes; the integument of the leg forms a thick fold, which overhangs the ankle and foot, and conceals the latter to a greater or less extent; and the limb is so altered from its original shape, and so deformed, as to have more the character of an elephant's leg than of that of a human being. This resemblance is all the greater from the corrugated, rough, and discoloured appearance which the epidermis presents, and very naturally suggested to the Arabian physicians the designation *dal fil*, the elephant disease.

The European translators of the works of the Arabian physicians, ignorant of the disease of which the latter treated, inferred that the term *dal fil* was intended to signify the disease familiar to themselves, and described by the Greeks under the name of elephantiasis, and named it accordingly. Subsequent writers, however, discovered the difference of the two diseases, and distinguished them by the names of elephantiasis Arabum and elephantiasis Græcorum; and thence has resulted a considerable amount of confusion, that for a long time has complicated the history of these diseases, and is not yet entirely cleared away. We, however, diminish the difficulty very materially when we call the elephantiasis Græcorum by its proper name, LEPRO, and elephantiasis Arabum by the more appropriate name of bucnesia.

The characteristic features of bucnesia are the prodigious enlargement of the limb, due to augmented growth and infiltration into the tissues, and a coarseness and degra-

dation of structure of the tissues themselves. The patients whom we meet with in this country suffering under the disease, are either natives of a hotter climate or have resided in those climates for a considerable time. We have, however, seen one case of this kind of hypertrophy affecting the scrotum, in a gentleman who had never left this country. Another case which invaded the entire lower extremity of one side, the limb being three times the size of that of the opposite side, was imported from Australia; and recently we have advised an English gentleman affected with this disease in the foot and lower leg, who had resided in China. The swelling began eighteen years previously, after a sprain of the ankle. It was unattended with pain, but had on two occasions been the seat of ulceration, which for the time had greatly diminished its bulk, by giving exit to the infiltrated albuminous fluid. In the cases which have come under our inspection, there has been no evidence of disease of veins or lymphatics, or any enlargement of lymphatic glands.

DIAGNOSIS.—Bucnemia when fully developed is unlike any other affection of the skin: in an incipient stage it might be confounded with that œdematous condition of the integument and subcutaneous cellular tissue which goes by the name of “white leg,” and which originates in inflammation of the veins; indeed there is some analogy between the two diseases, and bucnemia may in its essence be a “white leg” of endemic or sporadic origin.

CAUSE.—Bucnemia must be referred to endemic or sporadic causes peculiar to hot climates, but occurring exceptionally in those of a milder temperature.

PROGNOSIS.—Our hopes of cure must be very limited; the disease is very troublesome and annoying, but not in its nature of a fatal tendency. Nevertheless, by inducing debility and exhaustion, it would eventually undermine the health.

TREATMENT.—Our experience of the disease does no

more than warrant the suggestion of means founded upon general principles ; for example, the iodide of potassium or ammonium, arsenic, with local pressure and position. We advised our patient, above referred to, to commence his treatment with a course of Zittmann's decoction. Some benefit might also be anticipated from a prolonged course of the bichloride of mercury. But any plan of treatment that may be determined upon must be continued steadily for a considerable length of time. Time, in this as in many other diseases, will be an important medicine in the cure.

Those prodigious enlargements of the scrotum that sometimes find their way from China into our hospitals in this country, have in several instances been submitted to the knife ; and it is surprising how much the Chinese constitution will bear in the way of surgical operation.

ATROPHIC AFFECTIONS.

ATROPHIA CUTIS is a rare form of disease of the skin ; it is sometimes general and sometimes partial.

When *general*, the skin becomes thinned and stretched, and seems as if it were too small for the body which it contains. The thinness and stretching are most remarkable at the apertures of the body and in the extremities ; the eyelids look too small to cover the eyes ; the nose is pinched ; the ears curled up ; the teeth exposed by the contraction of the lips ; and the cheeks are drawn against the jaws so as to produce a cadaveric expression of countenance. The skin of the neck in like manner is stretched, and the fingers and toes are shrunk, pointed, white, and not unfrequently ulcerated at the tips. The process is so gradual that the ends of the last phalanges make their appearance beyond the skin without much previous pain. The bone crumbles and comes away, and after a while a fresh piece is protruded, until an entire phalanx may be expelled through the opening.

Often also the tendons contract, and the fingers are more or less bent.

The pain accompanying these pathological phenomena is generally very trivial ; there is always great coldness with numbness ; some degree of aching ; then a little pus appears at the ends of the fingers ; then a chronic ulceration of little apparent moment ; and then the ragged end of the bone. These phenomena remind us very strongly of *lepra nodosa* (*elephantiasis Græcorum*), and suggest the idea that this curious affection may be a remnant or vestige of the ancient leprosy.

ATROPHIA CUTIS LINEARIS.—Partial atrophy of the skin generally assumes the character of a *linear atrophy*, its linear form being determined by the course of a nerve, a paralysis of which has originated the disease. We have met with several examples of this complaint, and most frequently on the forehead, where they have taken the line of one of the branches of the supraorbital nerve. The first symptom generally is a faint white line, along the borders of which the normal redness of the skin is a little increased ; by degrees the white line becomes more evident, broader, and depressed, and the distinction between it and the bordering sound skin more obvious. Later, the sensibility of the affected skin is lost, the skin is withered, and a reparative process, the absorption of the damaged skin, is commenced ; and as a result of the latter process, the adjoining parts of the healthy skin are drawn together, and nothing remains but a deep linear groove resembling the scar of a sword-wound.

DIAGNOSIS.—The general signs of atrophy already described distinguish this affection from the generality of cutaneous diseases ; but from the atrophy which accompanies *lepra* (*elephantiasis*) the distinction is not so easy. Indeed we ourselves have sometimes doubted whether these affections might not be classed with *lepra anæsthetica*. A similar state of the skin is occasionally seen, which is asso-

ciated with a tubercular infiltration resembling that of *lepra tuberculosa*; and this latter we have not hesitated to group with *lepra*, under the designation of *morphæa lardacea*.

CAUSE.—Of the predisposing cause of atrophia it is difficult to make a suggestion; the general form is usually associated with an extreme state of nervous debility; and the exciting cause of the partial or linear kind is sometimes traceable to violent muscular efforts, such as accompany spasmodic sneezings and spasmodic cough.

PROGNOSIS.—The general form of atrophia cutis is grave; the constant irritation which it keeps up tends to weaken and exhaust the constitution. The linear form of atrophy is not serious, and we have seen it undergo spontaneous cure.

TREATMENT.—Atrophia cutis being more constitutional than local in its nature, that is as regards its general form, we must have recourse to tonics, and last, and often best among these, to arsenic. We repeat here what we have already said before, that arsenic is a special cutaneous tonic, and therefore a very appropriate remedy where loss of nervous power of the skin is specially concerned.

The local treatment must consist of moderate stimulant applications, such as the *ceratum resinæ*, or ointments containing mildly stimulant balsams. We have also found camphor cerate and a weak solution of nitrate of silver useful adjuvants. In cases of linear atrophy we have pencilled the part with the *acetum cantharidis* with advantage, and have applied liniments containing chloroform.

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