CUTANEOUS MEDICINE.

THE

STUDENT'S BOOK

OF

CUTANEOUS MEDICINE

AND

DISEASES OF THE SKIN.

BY

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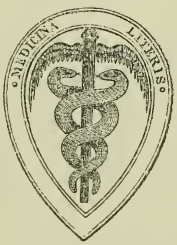

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ARRANGEMENT OF SUBJECT.

THE ARRANGEMENT OF SUBJECT adopted in this book is termed CLINICAL, in consequence of being founded on the most salient and striking characters of each disease, whether those characters be in their nature pathological, etiological, or physiological. Taking this as our basis of arrangement, we are enabled to classify all the diseases of the Skin at present known into *twenty-two* groups, as follows :—

1. ECZEMATOUS AFFECTIONS,
2. ERYTHEMATOUS AFFECTIONS,
3. BULLOUS AFFECTIONS,
4. FURUNCULAR AFFECTIONS,
5. NERVOUS AFFECTIONS,
6. VASCULAR AFFECTIONS,
7. HÆMIC AFFECTIONS,
8. DEVELOPMENTAL AND NUTRITIVE AFFECTIONS,
9. HYPERTROPHIC AND ATROPHIC AFFECTIONS,
10. ALPHOUS AFFECTIONS,
11. STRUMOUS AFFECTIONS,
12. CARCINOMATOUS AFFECTIONS,
13. ZYMOTIC AFFECTIONS,
14. SYPHILITIC AFFECTIONS,
15. LEPROUS AFFECTIONS,
16. PIGMENTARY AFFECTIONS,
17. PHYTODERMIC AFFECTIONS,
18. UNGUAL AFFECTIONS,
19. DISEASES OF THE HAIR SYSTEM,
20. DISEASES OF THE SEBIPAROUS SYSTEM,
21. DISEASES OF THE SUDORIPAROUS SYSTEM,
22. TRAUMATIC AFFECTIONS.

If we examine this classification a little more closely, we shall find that certain of these groups are composed of DISEASES OF THE GENERAL STRUCTURE OF THE DERMA; for example,—

1. Eczematous affections,
2. Erythematous affections,
3. Bullous affections,
4. Furuncular affections.

SECONDLY there follows a group of DISEASES OF THE SPECIAL STRUCTURE OF THE DERMA, taking in the nerves, the vessels, and the contents of the vessels; thus,—

5. Nervous affections,
6. Vascular affections,
7. Hæmic affections.

A THIRD GROUP comprehends the morbid changes involved in the development, nutrition, and growth of the derma; namely, DISEASES OF DEVELOPMENT, NUTRITION, AND GROWTH, as follows:—

8. Developmental and nutritive affections,
9. Hypertrophic and atrophic affections.

A FOURTH GROUP is founded on the presence of an existing disposition or tendency to the particular disease; in a word, *diathesis;* the DIATHETIC DISEASES being,—

10. Alphous affections,
11. Strumous affections,
12. Carcinomatous affections.

A FIFTH GROUP is founded on the dependence of the disease upon a blood-poison; DISEASES RESULTING FROM BLOOD-POISONS, and the members of that group may be stated as follows:—

13. Zymotic affections,
14. Syphilitic affections,
15. Leprous affections.

A SIXTH GROUP is composed of DISEASES OF THE EPIDERMIS, for example :—

16. Pigmentary affections,
17. Phytodermic affections,
18. Ungual affections.

A SEVENTH GROUP includes the DISEASES OF THE FOLLICLES of the skin and their dependencies, namely :—

19. Diseases of the hair system,
20. Diseases of the sebiparous system,
21. Diseases of the sudoriparous system.

While as an EIGHTH GROUP, but one very indispensable, there remain only DISEASES INDUCED BY INJURY, namely :—

22. Traumatic affections.

Thus it may be shown that, although the individual groups are numerous, they admit of being collected under *eight* heads, as follows :—

1. Diseases of the general structure of the derma,
2. Diseases of the special structure of the derma,
3. Diseases of development, nutrition, and growth,
4. Diseases of diathesis,
5. Diseases resulting from blood-poison,
6. Diseases of the epidermis,
7. Diseases of the follicular apparatus,
8. Diseases induced by injury.

And the eight groups might, upon a physiological basis, be further reduced to half that number, as follows :—

1. Dermal affections,
2. Epidermal affections,
3. Follicular affections,
4. Traumatic affections.

The dermal affections, including,—

a. Diseases of general structure,
b. Diseases of special structure,
c. Diseases of function,
d. Diseases of diathesis,
e. Diseases of blood-poisoning.

It may be objected critically that there is a want of unity in the CLINICAL CLASSIFICATION; but as unity of arrangement of cutaneous diseases is neither possible nor practical, the sooner that objection be waived the better; and the classification is none the worse in our opinion because *four* of the eight groups are founded on a physiological, *three* on an etiological, and *one* on a pathological basis. In the class-room or by the bedside we believe that the clinical classification will not be found wanting in its adaptability to the wants of the student and of the practitioner.

PART II.

CHAPTER XII.

X. ALPHOUS AFFECTIONS ... ... *Page* 277
ALPHOS 277

CHAPTER XIII.

XI. STRUMOUS AFFECTIONS 290
SCROFULODERMA 290
LUPUS 291

CHAPTER XIV.

XII. CARCINOMATOUS AFFECTIONS 300
CARCINOMA CUTIS 300

CHAPTER XV.

XIII. ZYMOTIC AFFECTIONS 305
RUBEOLA 311
SCARLATINA 319
VARIOLA 335
VARICELLA 348
VACCINIA 353

CHAPTER XVI.

XIV. SYPHILITIC AFFECTIONS ... *Page* 360
SYPHILODERMA 361

CHAPTER XVII.

XV. LEPROUS AFFECTIONS 377
LEPRA VEL ELEPHANTIASIS 377
MORPHŒA 393

CHAPTER XVIII.

XVI. PIGMENTARY AFFECTIONS 398
MELANOPATHIA 399
XANTHOPATHIA 407
LENTIGO 408
CHLOASMA 409
CYANOPATHIA 413
LEUCOPATHIA 413

CHAPTER XIX.

XVII. PHYTODERMIC AFFECTIONS 417
NOSOPHYTA 417

CHAPTER XX.

XVIII. UNGUAL AFFECTIONS 421
DEGENERATIO UNGUIUM 423
ONYCHIA 424

CHAPTER XXI.

XIX. AFFECTIONS OF THE HAIR SYSTEM *Page* 427
HIRSUTIES 428
ALOPECIA 429
CANITIES 437
FRAGILITAS CRINIUM 438
TRICHOSIS VEL TINEA OR RINGWORM 439
MORBI SEBACEI 446
FAVUS 446
KERION OR SCALLED HEAD 451
SYCOSIS 455

CHAPTER XXII.

XX. AFFECTIONS OF THE SEBIPAROUS SYSTEM 460
EPIDERMIC HYPERTROPHY 460
EPITHELIAL HYPERTROPHY 461
CANCROID HYPERTROPHY 462
STEARRHŒA 462
ASTEOTODES 462
ALLOSTEOTODES 463
COMEDONES 466
TUMORES SEBIPARI 468
TUMORES ENCYSTICI 470
TUBERCULA SEBACEA 473
ACNE 474

CHAPTER XXIII.

XXI. AFFECTIONS OF THE SUDORIPAROUS SYSTEM ... ... *Page* 478
IDROSIS VEL EPHIDROSIS 478
ANIDROSIS 481
OSMIDROSIS 482
CHROMIDROSIS 483
HÆMIDROSIS 483

CHAPTER XXIV.

XXII. TRAUMATIC AFFECTIONS 485
MALIS SEU MALIASMUS 485
AMBUSTIO 493
GELATIO 497

APPENDIX.

HEBRA'S CLASSIFICATION OF CUTANEOUS DISEASES ... 502

ALPHABETICAL INDEX 511

CHAPTER XII.

ALPHOUS AFFECTIONS.

ALPHOS is one of the three vitiligoid or spotted affections of Celsus. "It is called alphos," he says, "when it is white, rough, and dispersed, resembling drops sprinkled on the skin: sometimes the spots have greater breadth than mere drops; and are apt from time to time to enlarge their dimensions." The roughness or scaliness of the eruption gained for it the name of lepra,* and also of psoriasis. But these terms are more correctly applicable: *lepra*, to the ancient leprosy; and *psoriasis* to the dry, thickened, and squamous stage of psora, the modern eczema; and we consider it to be a mere act of justice to restore the original and very appropriate name of alphos, by which the disease was known to the fathers of medicine.

Alphos is an eruption of white, round, and slightly-raised spots, varying in size from two lines to an inch or two inches in diameter, symmetrically dispersed over the surface of the body, but met with especially on the elbows and knees; and sometimes forming continuous patches of irregular figure and considerable extent. The whiteness of alphos is due to a scale of morbid epidermis formed on the surface of the spot; its roundness and elevation are the consequence of its origin from a tubercle, or from a cluster of tubercles; and the size of the spot is dependent on the

* Λεπρα, *à* λεπρος, scaly, scabby, rough.

presence of a single tubercle; of a cluster; or of an aggregation of clusters of tubercles.

At its earliest appearance the pathological element of alphos is a small flattened papule which occupies the circumference of the mouth of a follicle; the papule is of a dull red colour and one line in diameter; and in a short time enlarges to the diameter of two, three, and four lines. Sometimes it retains the latter size permanently and constitutes the form of alphos termed *guttatus;* at other times the redness spreads from the base of the primary tubercle, a circle of pores around it are involved, and the tubercles developed at the apertures of these pores become fused into one continuous elevated border. The patch has now attained the diameter of five or six lines, it is circular in figure, has a rounded border which sometimes exceeds in elevation the central or primary tubercle, and has a tendency to peripheral growth: this is the circinate form of alphos; in other words, alphos vulgaris.

Alphos, therefore, may exist as a single tubercle; as a cluster of tubercles more or less completely fused into a single circular mass or patch, or it may present an aggregated character, and constitute a widely-spread patch composed of independent tubercles, connected by a common erythematous base; the patch being irregular in its outline, and covering a large surface, sometimes an entire limb: this is alphos diffusus. These differences in degree of development of the eruption have reference, doubtless, to the constitution of the patient, to the tone of the skin, or to the energy of the disease; but their chief interest consists in their being the basis upon which are founded the varieties of the disorder. An arrest of development of the eruption at the papular stage constitutes an alphos papulosus, a variety heretofore undescribed; its advance to the condition of an isolated tubercle is the alphos guttatus; a cluster of tubercles, blended into a single patch, of moderate size and circular form, is alphos circinatus vel vulgaris; while an

aggregation of tubercles, covering a large surface, without fusion of mass, and with an irregular boundary, is alphos diffusus.

This eruption presents some variety in its degree of elevation; sometimes the elevation is very slight, as in alphos papulosus, and in a pityriasic form of the disease, occasionally met with; while in the ordinary forms the prominence of the tubercles reaches to about a line. The scale or crust also exhibits differences, both in thickness and whiteness; these properties of the scale being due to the activity of morbid cell-formation, and being greater in proportion to the degree of imperfection of the structure of the cells. The most morbid condition of the scale is evinced by a laminated and porous structure; the lesser degree of departure from the healthy standard, by the yellowish and horny foliation of ordinary epidermis. In alphos circinatus, which creeps on gradually by its circumference, the scale becomes imbricated, and has a very remarkable character, being dense and yellowish in the centre, and laminated and snowy towards the circumference, often assuming a frothy lightness of appearance with a silvery brilliancy. In alphos guttatus the scale forms a little white cap to each of the tubercles; and the scales of alphos diffusus are an aggregation of crusts of this smaller kind, accumulated often in astonishing numbers.

When alphos is in process of cure, the tubercles subside; in the guttated variety they sink in mass to the level of the skin; in the diffused kind, they sink here and there in the midst of the irregular patch, and form so many clearings, which go on enlarging in dimensions until the patch is wholly removed. The mode of disappearance of the circinate kind is, however, more peculiar; the patch subsides in the centre where the skin is restored to its normal state, while it runs on by the circumference, and so forms a ring of variable size. Then the ring gives way, and the patch is reduced to one, two, or more segments of the original circle.

When two rings join by their circumference they form a figure of 8; and when several rings are thus connected in the state of dispersion, they give rise to a variety of irregular figures, which have suggested the term alphos gyratus.

Alphos has no constitutional symptoms, and scarcely any local symptoms. It is consistent with the most perfect health of the individual; but as the sufferers from alphos are not protected from other diseases, the eruption may be rendered irritable, and become inflamed from the presence of different disorders; for example, gout or eczema. In gouty persons alphos will frequently become red, tumid, and excessively itchy;—alphos erythematosus. And in eczematous subjects the eruption may become the seat of eczematous congestion, and assume the characters of the fissured, the ichorous, and the encrusted forms of eczema. These symptoms, however, must not be regarded as belonging to alphos, but as being the appurtenance of the disorder by which it is complicated. Alphos generally gives rise to no inconvenience whatever beyond the vexation of its appearance, and occasionally to some little itching arising from the accumulation of the scales upon the skin; the itching being apt to be increased by the warmth of the body, and particularly by the heat of exercise.

When alphos disappears from the skin, it not unfrequently leaves melasmic stains on the spots occupied by the patches; and at other times the skin around has become darkened, while the seat of the patches is bleached. This melasmic discoloration is usually attributed to the stimulant action upon the skin of the arsenic used in the treatment of the disease; and in many instances, no doubt, this explanation is correct. It is evidently so in the case of diffused melasma with bleached patches; but we have noted cases in which melasmic stains were present, and where no arsenic had ever been administered. In these latter cases the congestive energy of the skin had supplied the place of the stimulus attributed in other instances to arsenical action.

The principal varieties of alphos are three in number, namely:—

Alphos circinatus,
Alphos guttatus,
Alphos diffusus.

To which may be added as accidental forms, alphos papulosus, alphos pityriasicus, and alphos gyratus; and certain local forms; for example, alphos capitis, alphos faciei, and alphos articulorum.

Alphos circinatus vel vulgaris, the lepra vulgaris of Willan, and the psoriasis vulgaris of most modern authors, is the common form of the disease. The patches are developed in the semblance of circular disks, of an average diameter of one inch; they enlarge by the circumference, and in process of cure subside at the centre, and are converted into rings. Alphos circinatus is the most strikingly-marked form of the disease; in it the circular figure, the depressed centre, the raised border, and the laminated and porous scale are best exhibited. It is met with on the fleshy parts of the body, as of the trunk and limbs; and on the elbows and knees, where it is constantly present, it loses its circular figure, and becomes irregular and diffused.

Alphos guttatus, the lepra alphoides of Willan, is rare as compared with alphos circinatus; it presents the tubercular type of the disease in a persistent form, has a thinner and less artificially developed scale than the preceding, and no tendency to grow by the circumference and subside by the centre; on the contrary, its summit is always the most prominent part of the eruption, and the average diameter of its tubercle, two lines.

Alphos guttatus is commonly intermingled with patches, composed of several tubercles, which approach in size the smaller disks of alphos circinatus; it is for the most part dispersed over the trunk of the body, and sometimes on the limbs. If there be any eruption present on the elbows and

knees, it presents the diffused character, as in alphos circinatus.

Alphos diffusus is the lepra inveterata of Willan, and is remarkable for the large size of its patches, often covering an entire limb; and for an obstinacy of character which has gained for it the title of inveterata. Unlike alphos circinatus, it has no tendency to circularity of form; while in structure it consists of a multitude of the typical tubercles of alphos closely assembled together, sometimes touching, and frequently blending by their bases. The scales of alphos diffusus often attain considerable thickness, and fall in a shower when the eruption is brushed by the hand. This form of the disease is more frequently complicated with bleeding cracks and fissures, and also with eczema, than the other varieties.

On the convexities of the elbows and knees alphos commonly assumes the diffused form, although the general form as developed elsewhere may be circinate or guttate.

Alphos papulosus, although heretofore undescribed, is fully as common as alphos guttatus. It is alphos arrested at its papular stage, when it exists as a crop of flat papules developed at the apertures of the pores of the skin. The papules have a dull red colour, are flat on the summit, very little raised, and glazed on the surface by a layer of transparent and horny cuticle. They are unlike the papules of lichen, though scarcely larger, have a square base, and are chiefly developed in the neighbourhood of joints and on the abdomen.

Alphos pityriasicus, like alphos papulosus, is an imperfectly developed form of the eruption, in which the elevation and thickening of the skin are absent, and the squamæ small and imperfect. Such cases must be regarded as presenting an aberration from the natural standard; but they are not very uncommon.

Alphos gyratus, as we have already described, is an accidental combination of the rings of alphos circinatus,

sometimes observed during the dispersion of the eruption. The disorder never begins in a gyrated form.

ALPHOS CAPITIS.—Alphos is not unfrequently met with on the hairy scalp, and covers the head more or less extensively, showing a red margin along the forehead and temples. It commonly presents the diffused form; the scalp is thickened, very itchy, and throws off an abundance of white scales. Alphos capitis rarely exists independently of the presence of the eruption on other parts, particularly on the elbows and knees; but the general eruption may be insignificant as compared with that of the head.

ALPHOS FACIEI.—As a general rule, it may be said that alphos never occurs upon the face; but there are occasional exceptions, and the above designation is intended to record the exception. On the face the patches are usually flat and very little raised, and often present the characters of alphos pityriasicus. It is always associated with patches of eruption occurring on other parts of the body.

ALPHOS MANUUM indicates another exceptional seat of the eruption—the back of the hands. We have also seen it once or twice on the palm of the hands. In this, as in the generality of the varieties, the eruption is also met with elsewhere, and notably on the elbows and knees.

ALPHOS UNGUIUM illustrates a more common seat of the disease—namely, the matrix of the nail, where it destroys the normal secretion and growth of the nail, causes its separation from the derma, and subsequent fall. We have a patient under our care (a young lady) who, besides general alphos, also suffers with alphos faciei, dorsi manuum, et unguium; the existence of alphos of the nails must generally be regarded as a serious aggravation of the affection, and indicates an obstinate form of the disease.

ALPHOS ARTICULORUM reminds us of the special propensity of this eruption to attack the convex side of the elbows and knees. It is very rarely absent from these regions when it exists elsewhere, and not uncommonly it lingers on them

when it has disappeared from the rest of the skin, or it is sometimes limited to these joints and has never appeared on any other part.

Willan describes a *lepra nigricans*, which seems to be nothing more than a lividity of colour of alphos circinatus, due to cachexia; it is also probable that some forms of centrifugal syphilitic tubercle have been included under this head. At the best, it is a mere alteration in the colour of the eruption, without any difference of pathological structure, and we have therefore thought it well to omit it from consideration as a variety of the disease.

A *lepra syphilitica*, the synonym of alphos syphiliticus, has also been described; but the term is incorrect; alphos is essentially distinct in its nature and manifestation from tubercular syphiloderma, to which the above name has been applied. The error has arisen from a similarity of appearance, syphiloderma often presents a tubercular character, spreading by its circumference, subsiding in the centre, and covered by a thickened epidermis in the state of desquamation; but the antecedents and accompanying features of the disease are essentially different.

Diagnosis.—Alphos is distinguished from other cutaneous diseases by its white, roof-like, porous, and often laminated scale, surmounting a dull red tubercular base. The only eruption with which it can be confounded is a tubercular and non-ulcerative form of syphiloderma. In a case of doubt we may be guided to the truth by the constitutional condition of the patient: if the eruption be syphilitic, there will have existed some foregone symptoms of that disease, and the patches on the elbows and knees, so characteristic of alphos, will be absent. We shall also derive help from a remembrance of the symmetrical distribution of alphos, and from a knowledge of the duration of the disease. Syphiloderma is chronic, lasting for several months, but alphos exceeds every other known disease of the cutaneous tissues in chronicity. Forty-two out of one hundred cases of alphos,

nearly one-half, have been in existence more than ten years; twenty-eight had lasted between ten and twenty years, and fourteen between twenty years and fifty-seven.

Cause.—Alphos is due to an innate tendency or diathesis; and the diathesis in many instances is hereditary. It occurs pretty equally in males and females; and is met with at all periods of life, from the age of three to eighty years. In its origin it is most frequent at puberty, twenty-three in one hundred cases beginning between ten and sixteen; and it is remarkable, that in examples of hereditity, where the children are numerous, ranging from four to ten in one family, the number afflicted with this disease rarely exceeds two; in three families of ten each, the number of children attacked with alphos was three in one, and two in the others; while in three families of six and seven children, only one in each was the subject of this disease. In reference to predisposing causes, we have little evidence; four examples in one hundred cases were traceable to a consumptive stock; two to a gouty source; and one to the marriage of near relations; while in the same number, the exciting causes, arranged in order of frequency, were as follows:—rubeola, scarlatina, parturition, over-study, over-nursing, development of menses, bad or insufficient diet, rapid growth, exposure to cold while heated, climate, fever, anæmia, cessation of menses, overheating the body, sea-bathing, and debility caused by syphilis. It is curious, however, to note, that one case was cured by an attack of measles. Alphos is greatly influenced by seasons, being worst in the winter, and clearing away in the summer; it commonly begins to appear or increase in the autumn; but exceptional cases are occasionally met with, wherein the eruption is worst in the spring and summer.

Prognosis.—The prognostics as to cure are most unsatisfactory. Alphos may disappear after a few years, but it is equally likely to last a lifetime; and no difference is perceivable whether the disease be independent or hereditary in its

origin; the only thing that can be said in its favour being that it does not affect the health, but only the comfort of the patient.

Treatment.—In simple or uncomplicated alphos, there is commonly no question of regulating the digestive organs and general health; the specific treatment may be commenced at once, and the one reliable remedy is arsenic. Where, however, there is any disturbance of the health, or any complication such as gout or eczema, the complication must be removed in the first instance, before the specific treatment is begun. It will usually be found that with the removal of the complication the eruption will be benefited, and the patient may be led to hope that the eruption is in process of cure; but the physician knows full well to what the improvement is due, and does not permit himself to be so easily deceived.

The best form for the administration of arsenic is the liquor potassæ arsenitis, or Fowler's solution. Another good form is that of De Valangin, the liquor arsenici chloridi; and occasionally, we may have recourse to Donovan's solution, the liquor hydriodatis hydrargyri et arsenici. Commencing with the first, we may prescribe a mixture which we believe cannot be excelled, as follows:— ℞. vini ferri, ʒiss.; syrupi simplicis, ʒij.; liquoris Fowleri, ʒij.; aquæ puræ, ʒij.; the dose to be one drachm, three times a day, and taken in the middle of a meal. The patient should be furnished with a minim measure, and after measuring the dose, he should drink it pure, out of the measure. The reasons for these instructions are, that where a medicine is to be taken for many months, and three times every day, it is important that it should be as agreeable in taste as possible; and also that it should be administered in the smallest dose practicable; again, a small quantity is less likely to nauseate the stomach than a larger one. Secondly, by taking the dose in the middle of the meal, it is secured a more thorough admixture with the food; and it is less likely to

be brought into direct contact with the mucous surface. We may add, that the experience of many years has convinced us that this is the best, and therefore, the only method according to which this very important remedy should be used.

It will be observed that one drachm of the above mixture contains four minims of Fowler's solution: we might prefer to begin with a smaller dose, two or three minims: this is effected by regulating the relative proportions of the arsenical solution and syrup; to give two minims to the dose, the former should be one drachm, the latter three drachms; and in like manner for three minims or five minims; the first and the last of the ingredients always remaining the same. We should give a small dose at first, to test the susceptibility of the patient to our remedy; and if we find no inconvenience to result, we can raise it by degrees; but in no instance will it be found necessary to increase the dose beyond five minims. We believe that arsenic operates its healing effects by time, rather than by quantity; at any rate it is clear, that in the treatment of alphos it must have time, and if we nauseate the stomach by too large doses given at first, we frustrate our own intentions, namely, of applying a chronic remedy to the cure of a chronic disease. If a stomach be intolerant of arsenic, it is shown at the commencement of treatment, and then we must diminish our dose or suspend our treatment for a while; where there is no intolerance of the remedy, but where, after a time, say several weeks, it shows signs of disturbing the functions of the stomach or of the nervous system, a state usually referred to the cumulative effects of arsenic, we must again suspend our treatment, for a week or longer if necessary. We commonly anticipate this possibility by commanding our patient to desist immediately from the use of the remedy if it seem to disagree in any manner whatever. The importance of these remarks will be the better understood when the student is reminded that

the patient may require to continue the remedy steadily and daily for a period of three, six, or nine months, and even longer. Hence our care in the combination of the medicine, and in the regulation and administration of the dose.

Possibly we may wish to make a change in our remedy; one form or combination of remedy may suit the stomach better than another form; or it may be desirable for the sake of change, for change is an important feature in the use of medicines, and then we may select the acid solution of arsenic, the solutio solventis mineralis of De Valangin, as follows :—℞. liquoris arsenici chloridi, ʒiv.; acidi hydrochlorici diluti, ʒj.; syrupi simplicis, ʒiij.; aquæ ʒiij. Here then is a mixture of the same strength as the ferro-arsenical medicine, which may be administered in the same way, or with the addition of a little water to subdue the acidity; but in every other respect after the same method, and with the same precautions. We have seen a case of alphos cleared by the acid solution, which has proved rebellious to the alkaline solution, but, as far as we know, it is not on the whole so reliable a remedy as Fowler's solution.

Where there exists chronic disorder of the digestive organs; at or after the mid period of life; where there are signs of torpid liver and inactive nutrition; we may find an useful remedy in Donovan's solution, and we would recommend as a formula: ℞. liquoris hydriodatis hydrargyri et arsenici, ʒj.; syrupi simplicis, ʒiij.; a drachm in one ounce of water, for a dose; to be taken three times a day, half an hour after meals.

Other remedies, all of inferior character to the preceding, have been recommended by different authors from time to time; for example, the pix liquida, in the form of pills; tar in capsules, and tar-water; liquor potassæ, in half-drachm doses three times a day; tinctura lyttæ; and various vegetable decoctions, of which the most important is the decoctum dulcamaræ. We sometimes combine the tinctura

lyttæ with Fowler's solution in equal doses, and with very good effect.

The local treatment of alphos is founded on the idea of modifying the morbid action in the skin, and removing the scales. The remedies the best suited to this purpose are pitch and tar in the form of ointment and soap, sometimes alone, and sometimes in combination with sulphur, or with one of the salts of mercury. The unguentum picis liquidæ, or unguentum juniperi pyrolignici, should be well rubbed into the eruption at night, and thoroughly washed off in the morning with soap; or the juniper-tar soap may be well rubbed into the eruption at night, allowed to dry upon the part, and washed off in the morning; or the tar liniment may be used; *e.g.*, olei juniperi pyrolignici; saponis mollis; alcoholis, aā ʒj.; aquæ ʒv. If these remedies create tenderness, the spots should be moistened after the morning ablution with the benzoated ointment of oxide of zinc, or with glycerole.

In alphos capitis the scalp should be thoroughly washed daily with the juniper-tar soap, and afterwards anointed with the nitric-oxide of mercury ointment, three parts diluted. The same ointment, or the white precipitate ointment, is well adapted for alphos diffusus on the body or limbs; or a glycerole containing two grains of the bichloride of mercury to the ounce. For spots on the face, the best local application is the bichloride of mercury in emulsion of bitter almonds, one grain to the ounce.

CHAPTER XIII.

STRUMOUS AFFECTIONS.

STRUMA, or scrofula, presents itself in the skin in two forms—either as simple scrofuloderma or ulceration of the skin, consequent upon inflammation and hypertrophy of lymphatic glands, subcutaneous abscess, or disease of a bone; or as a primary disease of the cutaneous tissue—namely, *lupus*.

Scrofuloderma is especially remarkable for its chronic character, arising out of the lowered vitality of the morbid tissues; the edges of the ulcers are thin, often undermined, and wanting in granulations, or studded with granulations that are pale, tumid, and flabby, and bleed upon slight injury. Moreover, there is commonly an absence of purulent secretion, the discharges being ichorous or sanious, and more or less intermingled with small flakes of disorganized tissue. Sometimes there is only one opening through the skin, the edges of which have the appearance and hardness of a cicatrix; at other times the diseased surface is honeycombed with apertures, from all of which there is an oozing of unhealthy and often fœtid discharge.

The ulcers of scrofuloderma are apt to creep along the surface, sometimes healing in the part first affected, and slowly attacking a neighbouring sound part. On the healed part they leave a white or purplish cicatrix, sometimes callous, sometimes thin and transparent, sometimes roughened by the growth of granulations or tubercles of skin, and sometimes rendered prominent by the morbid growth of the

white fibrous tissue of the corium, constituting a traumatic kelis.

The situations most commonly affected by scrofuloderma are the submaxillary and submental region of the neck, the dorsum of the hands, and the dorsum of the feet and toes; it also occurs, but less frequently, on the arms and legs, and sometimes in front of the ear, and in the loins. On the feet it is more than usually obstinate, lasting for many years, and often causing adhesion of two or more of the toes; sometimes it attacks only a single foot, and then, from want of use, the foot becomes dwindled in size.

LUPUS.

LUPUS is so named from its destructive qualities; it is destructive in all its forms; but as in its destructive action there are three well-defined degrees, these degrees serve as the foundation of its three varieties, which are as follows:—

Lupus exedens,
Lupus non exedens,
Lupus erythematosus.

LUPUS EXEDENS, the most destructive of the three varieties, attacks principally the nose, and begins either in the skin or in the mucous membrane. When it invades the skin, it may begin at the tip or ala of the nose, or at the side of the organ; or it may make its commencement in the mucous membrane of the nostril or of the lachrymal duct. In its origin it is a tubercle which retains for awhile its tubercular form and then ulcerates, sometimes quickly, more frequently slowly. The presence of the tubercle, and especially of an ulcer, causes redness, swelling, and hardness of the adjacent tissues; the redness is dull, and sometimes livid; and the pain aching, gnawing, or throbbing, but not very severe. For a long time after its com-

mencement the tubercle is covered with a thin brown crust; from time to time a little discharge takes place at the edge of this crust, but the crust remains undetached, and is closely adherent for the greater part of its circumference. In this smouldering state the disease may continue for several weeks or months; at last the ulceration extends beyond the limits of the crust, and then the nature of the disease becomes apparent. If the crust be raised, the ulcer will be found to be deep, with vertical edges and uneven granular surface, sometimes secreting a dense white pus and sometimes a sanious fluid. From time to time, and without apparent cause, the ulcer becomes inflamed, and the tissues at its base congested and hard; and in a short time the hard and congested tissues are destroyed by the ulceration. This is the course of the disease: the primary tubercle distended by congestion and infiltration, ulcerates for relief; the congestion and infiltration are repeated from time to time, each time followed by ulceration, and so by degrees, sometimes slow and sometimes rapid (lupus vorax), tissue after tissue is destroyed, until the entire nose may be removed; or the nose and adjacent skin of the face, including the upper lip and deeper parts. In a case lately brought before us, the interior of the face was converted into one large cavern, communicating with the exterior by means of a single vertical hole which extended from the teeth of the lower jaw to the forehead; and through this large hole could be seen the lateral walls of the nares and the pharynx, the palate and the roof of the mouth being entirely destroyed.

Lupus non exedens is less destructive and therefore more lasting than lupus exedens; it is unattended with ulceration, and its situation is somewhat different, beginning on the cheek, on the upper lip, or on the lobe of the ear, and occasionally on the ala nasi, and spreading, not in depth, like the former variety, but along the surface. It originates as a small tubercle of a reddish yellow, or pale amber-colour,

and has the appearance of a drop of jelly effused beneath the cuticle. It is obvious that the papillary layer of the skin is disorganized, and converted into a tissue of low organization, a kind of hyaline tissue; there is no inflammation, no redness around the tubercle, and a few minute vessels may be seen straggling through it, or over its surface.

This is the first beginning of lupus non exedens, and in this shape it may often be seen in the very centre of the blooming cheek of a young girl; a few weeks later, two or three yellowish points may be observed around the original tubercle; these increase slowly, or, perhaps the change is more quickly effected and an uniform patch of slight elevation is formed by the blending of the tubercles, and the patch may go on increasing until it covers the greater part of the cheek. There is still the same reddish-yellow or pale amber tint of colour; still the same evidence of an apparently gelatinized tissue in place of the natural papillary surface of the derma; still the minute vessels straggling through the transparent tissue; still the absence of vascular congestion, either in the patch or around its circumference. We have before us one of those curious transformations due to lowered vitality of tissue; a highly organized structure, the papillary surface of the derma, converted into a non-vascular gelatinous stratum, and in a state to be absorbed and removed like an effete material. But the vitality of the skin is unequal to the exertion of removing the disorganized tissue, and so it remains; occasionally, however, it is removed spontaneously, and then we have proof of the nature of the disease; the papillary layer of the derma is gone, the fibrous structure of the corium is brought into view, and remains as a cicatrix for ever after. Here then is a cicatrix, permanent for life, on a spot where there has been no lesion of continuity, not even an abrasion of the cuticle. This is the first time that we have seen this curious phenomenon in our present travels along the pathway of cutaneous medicine; but we shall meet with it again.

But as in healthy so in morbid processes, nature is not always regular in her course. Sometimes a patch of large size is found which presents uniformly the structure already described; sometimes the morbid structure is removed by absorption at the centre of the patch, and the border stretches further and further upon the sound skin by its circumference; sometimes, the patch breaks up in parts, the tubercles subside here and there, clear spaces are formed in portions of the patch, and tubercles are scattered irregularly over the rest of the surface; sometimes the tubercular origin of the disease is manifest throughout its entire course, and sometimes it is entirely lost. Lupus non exedens is accompanied with little pain, sometimes none; sometimes there is a sense of pricking, and sometimes of itching. Commonly there is a slight degree of exfoliation of the cuticle, and sometimes, but rarely, the cuticle gives way along the prominent edges, and there results a little oozing of an ichorous fluid, and a consequent thin brown crust.

The disease is very chronic in its nature, lasting for many years, and sometimes for life. It increases by extension to the surrounding healthy skin, but it is also capable of reproduction through the areolar spaces of the fibrous tissue of the corium; and when it has been removed by a caustic application, it is apt after a while to show itself anew in these spaces, and throw up fresh tubercles.

Beginning by a single tubercle, or by a small cluster of tubercles, lupus non exedens will often spread over the whole of one side of the face and part of the other, including the nose in its course; and the loss of tissue which it occasions and the permanent cicatrix which it leaves behind give rise to considerable deformity: the alæ of the nose are drawn up as if by ulceration; the point of the nose is sharpened; the upper lip is shortened so as to bring the teeth into view; and the lower lids are pulled down so as to expose more of the globes of the eyes than natural.

Occasionally we meet with blotches of lupus non exedens

on other parts of the body than the face ; for example, on the arms or on the trunk of the body; and where the patches have been treated by poultice or water-dressing, it is not uncommon to find them complicated by a muco-purulent discharge, sometimes in considerable quantity, and without abrasion of the cuticle. But if the improper dressing be laid aside, the patch will recover its previous dry and tubercular character.

Lupus erythematosus is an erythematous redness of the skin occurring in patches of small size, usually on the face ; lasting for a long period without change, and terminating in a dry sordid and atrophied surface, or in a white depressed cicatrix. Lupus erythematosus is sometimes seen associated with lupus non exedens as a sequel of that complaint.

The disease is commonly met with on the nose, the cheeks, the upper lip, or the scalp ; it appears as a patch of irregular figure but well-defined redness ; the centre of the patch being coated over with a dry sordid cuticle, slightly depressed, and the follicles filled with horny exuviæ ; at a first glance the patch appears trifling; its stationary habit and resistance of treatment excite suspicion that it is something more than common erythema ; its disposition to occasion atrophy of the skin proves it to be more serious in its nature, and when it fortunately disappears spontaneously, the white cicatrix indicating the removal of the papillary layer of the derma, or on the scalp the destruction of the hair-follicles, declares its relation to the family of lupus. It is a chronic and very troublesome disease, and is sometimes incurable.

Associated with lupus erythematosus of the face, we not unfrequently meet with similar spots on the fingers ; in the latter situation they have somewhat the appearance of chilblains, and are commonly mistaken for them ; but their persistence through the summer as well as the winter, the white dry cuticle which covers their surface, the central depression, and frequently the atrophy of the portion of the skin attacked, indicate their real nature.

Diagnosis.—Scrofuloderma may be mistaken for syphiloderma, and in forming our diagnosis we must be guided by the strumous constitution or descent, together with the age of the patient, and the ordinary signs of struma; for example, the clear anæmic skin, blue eyes, thick lips, and enlargement of lymphatic glands. The experienced physician detects these signs at a glance, and is not likely to be deceived. Occasionally it is not easy to draw the line between simple scrofuloderma and lupus non exedens; and it is far from being uncommon to find the former merge into the latter at the expiration of several years; the period of abscess and ulceration belongs to scrofuloderma; the tubercular and non-ulcerative period to lupus non exedens.

The diseases likely to be mistaken for lupus exedens are tubercular and ulcerative syphiloderma and carcinoma; the resemblance between lupus exedens and some forms of syphilis is so close that one of the varieties of the latter has received the objectionable name of lupus syphiliticus. It is desirable to avoid confusion between these important diseases, as the treatment suitable for the one would do injury to the other. Our diagnosis must be founded upon the general history of the case rather than upon apparently distinctive appearances; the former is certain ground, the latter may be delusive, and the difficulty can only arise when the disease is limited to the point of the nose or the edge of the nostril. If there exist eruption in other parts of the body; if there be evidence of the previous existence of eruption elsewhere, or any of the concomitant signs of syphilis, we may easily decide the question; while the associated symptoms of lupus are, struma or strumous parentage, or the development of the disease at an early period of life. Cancer (epithelioma) commences in a sebiparous gland, is slower in its progress, attended with less congestion and swelling than lupus, and presents a peculiarly transparent and hardened border around its circumference.

Lupus non exedens, particularly of the face of young

persons, whom it usually attacks, is unmistakeable; on the limbs and trunk of the body it may be taken for tubercular syphiloderma or alphos. Youth, the presence of a strumous diathesis, and the absence of sore throat and other signs of syphilis, decide the question in favour of lupus. We have seen lupus non exedens on the limbs, occurring in circular patches of about an inch in diameter, strangely like alphos in appearance; but the origin was different,—a pustule or small abscess; and if a portion of the patch have undergone spontaneous cure, there will be the decisive evidence of a cicatrix in lupus and the absence of any morbid alteration of the skin in alphos.

Lupus erythematosus is distinguished from all other affections of the skin by its maintenance of a circumscribed erythematous form; its obstinate persistence; the atrophy of the surface of the skin that ensues; its sordid appearance; and the presence of a permanent cicatrix in parts that have healed. It is comparatively a rare affection.

Cause.—The cause of scrofuloderma and lupus is the strumous diathesis, whether hereditary or accidental.

Prognosis.—Scrofuloderma and lupus are remarkable for their obstinacy, frequently resisting treatment, and lasting many years, or for life; and even when the sequel is favourable, leaving behind them indelible cicatrices, and often considerable deformity, as where the face and nose are attacked and the latter more or less destroyed by absorption or ulceration.

Treatment.—In strumous affections in general, great attention must be paid to diet. There is commonly weak nutritive power and defective assimilation and sanguification; hence our patients are fair in complexion, pallid, flabby in tissue, and more or less anæmic. The diet should consist of one-half or two-thirds animal food. Animal food should be taken at each meal, and with the addition at dinner and supper of beer, either ale or porter, according to the taste of the patient. In these disorders occurring in children,

there is advantage also in mingling a few grains of phosphate of lime with each meal.

The medicines especially applicable to strumous affections are cod-liver oil, iodine, and iron; and these specific anti-scrofulous remedies may be combined with ordinary tonics, namely, vegetable bitters, cinchona, or quinine. In children the superphosphate of iron is especially valuable, and both in children and adults the syrup of the iodide of iron will be found of great service.

In all the forms of lupus it is important to regulate the functions of digestion and the secretions of the patient, and afterwards make our way through the ordinary tonics to the specific tonics; in other words, to put our patient in the best possible health, and by every means in our power, conjointly with the local treatment. By this process we give our local treatment a better chance of a certain and speedy success. We must maintain and support the vital power of the patient as much as possible, for our contention is against a debilitated constitution.

The *local* treatment of scrofuloderma must be stimulant in various degrees, according to the form of the disease; while water-dressings and poultices must be looked upon with great suspicion, as generally doing much more harm than good, by increasing the local debility of tissues already seriously weakened. Scrofuloderma in an ulcerating and fistulous state may be treated with the unguentum resinæ flavæ, diluted to suit the sensations of the patient, or the unguentum picis liquidæ, or the unguentum picis juniperi; the unguentum elemi is also an useful ointment; or if we need milder applications, we may have recourse to the benzoated oxide of zinc ointment, or unguentum calaminæ. The liquor plumbi diacetatis, pencilled on the tender skin, is sometimes useful; and when the ulceration is healed, the juniper tar liniment, or balsam of Peru, will be found of service in strengthening and hardening the skin Where tuberculous growths are to be absorbed or enlarged glands

to be reduced, the compound tincture of iodine may be painted on the part.

In lupus exedens the morbid tissue of the ulcer must be destroyed, and the condensed and infiltrated tissues unloaded by means of a free application of nitrate of silver, or, better still, a solution of equal parts of potassa fusa and water. After the operation the part may be dressed with the unguentum resinæ diluted one-half, or with the benzoated ointment of oxide of zinc.

In lupus non exedens the patch of morbid tissue, or the tubercles both primary and secondary, must be destroyed by the application of the solution of caustic potash (equal parts); after the application no dressing is required; and when the crust falls, the caustic should be repeated until the disease is entirely removed. When the diseased surface is extensive and the caustic can only be applied to a part of the eruption, the remaining portion should be kept washed night and morning with the juniper tar soap, and afterwards anointed with the benzoated ointment of oxide of zinc, or with glycerole containing one drachm of the oleum juniperi pyrolignici, or two grains of the bichloride of mercury to the ounce.

Lupus erythematosus is best treated in the same manner as lupus non exedens, with the caustic potash solution. Other remedies have been recommended, such as a concentrated solution of iodine in glycerine, the compound tincture of iodine of double strength, the biniodide and the chloriodide of mercury ointment, &c.; but we give the preference to the treatment above described.

CHAPTER XIV.

CARCINOMATOUS AFFECTIONS.

CARCINOMA of the skin is apt to occur upon the face in the form of a small tubercle, and for the most part after the middle period of life. The tubercle is solitary, gives rise to little or no uneasiness, is slow in its progress, and persists for several years without attracting attention. When ulceration begins, the process is equally torpid, but occasionally, and in an irritable state of constitution, may take on a more rapid action, and give rise to considerable destruction.

The tubercle at the beginning is round or lobulated, about one line in height and two in diameter; it is hard, semi-transparent, colourless, or yellowish and sometimes bluish, and streaked by a straggling network of small veins. It grows by the increase of its circumference, the border being more or less lobulated, and the centre somewhat depressed, and reaches a diameter of four to six lines, and sometimes one or two inches. By degrees a thin scale is produced over the central depression, one or two fissures are formed in the centre of the mass, an oozing of a colourless or semi-purulent ichor takes place, and the scale is converted into a scab or crust, sometimes brownish in colour, and sometimes, from an oozing of blood, almost black. At this period the tubercle is generally circular in figure, has a raised, lobulated, and semi-transparent border, streaked by venules, with a central dark-coloured or black scab, that looks like the lid of a cavity or like an eschar.

Ulceration is now established, but proceeds slowly, and is very imperfect; it is a softening and breaking up of the centre that takes place, rather than absorption. The discharge increases, although still small in quantity; it is ichorous or semipurulent, and sometimes sanguinolent; it forms by concretion and desiccation a thicker and harder crust, and on the removal of the crust a deep hollow is found, which is bounded by a vertical edge, that is sometimes excavated at its base, and sometimes everted. The floor of the cavity is uneven; it is composed of red, tumid, and bleeding granulations, which sometimes assume a fungous character, and sometimes rise in the centre above the level of the surrounding surface.

There is but little pain accompanying the progress of the disease; sometimes there is itching, which leads the patient to loosen the crust with his nail; sometimes there may be throbbing or darting, but commonly the local suffering is confined to a feeling of numbness, heaviness, or dull aching. These symptoms are increased if there be any derangement of digestion; and they are apt to be augmented by any constitutional disturbance of the economy, such as an attack of gout. When the disease takes on a more active character, it may become very painful, from involving deeper structures than the skin, and may destroy a surface of considerable extent. We have lately seen a case in which the greater part of the nose was destroyed; in another the external ear is almost entirely removed; while in a third instance we have seen the whole of the lower lid and part of the integument of the cheek swept completely away.

Carcinoma cutis is a more frequent affection than might at first sight be imagined. In two thousand cases of cutaneous disease it occurred eleven times, in other words, somewhat more than one-half per cent., or one in every two hundred. In twenty cases it was more than twice as frequent in males than in females; in two-thirds of that number it occurred after the age of fifty, several of the patients being

above sixty; and its general duration at the time of coming under treatment ranged between two and fifteen years.

In all the twenty cases the disease manifested itself on the face or its immediate neighbourhood; in nine, it appeared upon the cheek; in eight, upon the nose; while in one case it was developed on the eyebrow near its outer extremity; in another, on the temple, and in a third, upon the mastoid process. When it is formed on the side of the bridge of the nose, it is apt to creep towards the angle of the eye; near the ear it moves backwards; and in an instance before us, has destroyed the whole of the pinna, with the exception of the upper rim.

Commonly there is very little disturbance of the general health in this disease; sometimes we have noted cachexia, anæmia, debility, weak heart, and on several occasions an unhealthy condition of the skin of the face, which was dry, thin, wrinkled, sordid, and seemingly withered.

The form of carcinoma cutis now described has its origin in a sebiparous gland; it is, in fact, an epithelial cancer, or epithelioma, originating in one of these glands, conjoined with a propagation of the disease to surrounding glands. This idea of the pathology of the disease serves to explain the extreme tardiness of its course at first, when one only, or a small group of glands are attacked, and its subsequent more rapid progress, when it takes in the circle of glands which immediately border its circumference. The glandular origin and seat of the complaint also serve to explain the limitation of the disease to the gland-bearing portion of the skin.

Diagnosis.—The carcinomatous tubercle might be mistaken for a wart or for a mole; but a careful inspection discovers the disorganization of the mass, even before ulceration has commenced; in an ulcerated state it soon betrays its malignant nature. It might also be taken for an enlarged sebiparous gland, and its scab for a mass of concreted and discoloured sebaceous substance. When the morbid action

has sunk into the deeper tissues of the skin, the affected integument is remarkable for its hardness.

Cause.—Carcinoma, like alphos and scrofuloderma, takes its origin in a *diathesis*, and not in a blood-poison, like the zymotic and syphilitic affections. Alphos and struma are hereditary; carcinoma may be the same; but our knowledge of the precise cause of carcinoma amounts really to nothing. It is an indication of degeneration of the organic tissues, and is therefore very commonly associated with mal-assimilation, defective nutrition, and cachexia.

Prognosis.—Carcinoma of the skin is more under our control than a similar affection of the deeper tissues, and, if taken early, may be effectually and radically removed. It is altogether superficial at first, and seemingly perfectly local, exhibiting no tendency to produce hypertrophy of neighbouring lymphatic glands, nor any general disorder of the constitution. An unfavourable sign is a hardening of the subcutaneous tissues and the implication of cartilage in the disease.

Treatment.—The carcinomatous tubercle should be destroyed as early as possible by caustic, and the same remedy is equally applicable to its ulcerated condition. We sometimes use caustic potash, sometimes nitric acid, and sometimes the chloride of zinc; but we prefer the two former, in consequence of their being the least painful. A fragment of potassa fusa pressed into the centre of a tubercle of moderate size very soon disorganizes it throughout; the disorganized mass dries into a crust; and when the crust falls, at the end of about twenty days, the skin will be found healed and the tubercle gone, leaving a very unimportant cicatrix. If the tubercle be not wholly removed, the operation must be repeated; or if, at a later period, there should be any threatening of a return of the disease, then also the caustic should be reapplied. When the disease has the form of an ulcer, and particularly of any magnitude, it is better to apply a solution of equal parts of caustic potash and water

by means of a sponge-brush. Formerly we gave a preference to the nitric acid, but we are now strongly in favour of the potassa fusa, on account of the rapidity of its action, the speedier cessation of pain, and the absence of obscuration, which is associated with the use of other caustics. When nitric acid is selected, it should be mixed with sublimed sulphur to the consistence of paste, and applied somewhat thickly by means of a slip of wood: the sulphur incorporates itself with the scab, and the latter falls off in about the same time as that produced by the potassa fusa. The chloride of zinc may be applied in its deliquescent state by the aid of a camel's-hair brush, and afterwards dressed with dry lint. The other caustics require no dressing, and no further local interference until the crust falls.

CHAPTER XV.

ZYMOTIC AFFECTIONS.

ZYMOTIC AFFECTIONS of the skin are eruptions originating in the presence in the blood of an organic poison, which operates on the blood like a ferment; hence the term zymotic, derived from ζυμη, fermentum, or leaven, and tends to the production, in excessive quantity, of a poison similar to itself. The special eruptions coming under this head are:—

Rubeola,
Scarlatina,
Variola.

Arising from a similar cause, zymotic affections offer to our observation certain symptoms which are common to the whole; for example, *constitutional symptoms*, due to the action of the poison in the blood and on the general economy, symptoms having the character of fever; and *local symptoms*, manifesting the operation of the poison on the surface tissues of the body, the skin and mucous membrane. The former series of symptoms belong to the consideration of fevers; the latter bring the zymotic affections into the family of cutaneous disorders; and just as the history of fevers would be incomplete without embracing the eruptive fevers, the review of cutaneous diseases would be equally imperfect without the consideration of the phenomena presented by the operation of the zymotic poison in the tissues of the skin.

The poison of the zymotic affections, as of fevers in general, manifests its first and most powerful influence on

the nervous system; the brain, the spinal cord with its branches, and the organic system of nerves, are, as it were, intoxicated by the poison; then a general excitement of the circulating system ensues, and the excitement of the circulating system is followed by an outburst of eruption, an exanthema of the skin.

The exanthema is manifested by redness, resulting from congestion of the vascular plexus of the skin, congestion of the vertical or follicular capillary plexus (page 16), giving rise to puncta and papulæ, and congestion of the horizontal or papillary capillary plexus, producing suffusion. In rubeola or measles, the congestion affects chiefly the follicular plexus, and, governed by a law of structure, appears in small oblong clusters or corymbi, which give to the skin a mottled appearance, corresponding with the mottling of the arms of children in cold weather. In scarlatina the congestion is more diffused, from a blending of the two forms of congestion, and probably from a greater activity of circulation; it is no longer limited to the small insular corymbi which represent the extent of distribution of the ultimate ramuscules of a small artery or the range of influence of a nervous twig, but occurs in patches of large size, or is more or less uniform over the whole surface. Moreover, minute papulæ, resulting from follicular congestion, which are common in scarlatina, are less frequent in rubeola, and exhibit their highest degree of development in variola. In variola the congestion is chiefly follicular, and produces papulæ, which subsequently run through the vesicular and pustular stage, and terminate in dark brown and black scabs.

The pathology of the zymotic eruptions is, therefore, an active congestion of the capillaries of the skin, running on to the production of minute papulæ, and of larger papulæ which pass through the vesicular and the pustular stage. As far as pathology is concerned, rubeola and scarlatina are aborted forms of variola; rubeola representing the simple congestive form; scarlatina the congestive and papular

form; and variola the congestive, papular, vesicular, and pustular forms. It follows from this view of these eruptions, that the exanthema of rubeola, usually flat, may be more or less papular; and papulæ are often met with on the face, neck, hands, and legs, while they are absent elsewhere. Scarlatina, again, generally papular, particularly on the parts above indicated, may be more or less smooth. But rubeola and scarlatina never run on to the production of pustules, as is the case with variola. Rubeola and scarlatina, having but the limited range of simple congestion and papulæ, offer little variety of pathological structure; but the case is different with variola, which embraces all the chief pathological forms of inflammation of the skin; namely, redness, papulation, vesiculation, and pustulation. Variola may be arrested or aborted at each of these stages, and we may have, instead of the perfect pustular development of the eruption, a series of aborted forms, that reach no further than the papular, the vesicular, or the incipient pustular stages. These aborted forms of variola are termed varicella, and as their "abortion" is a frequent consequence of a previous attack of variola, or of vaccination, conditions which modify the violence of the variolous poison, they are also called "modified variola."

Variola, or small-pox, besides representing the human disease known by that name, also includes vaccinia, or the small-pox of the cow; we have therefore omitted to designate vaccinia separately; although from its importance, as offering a safeguard against the violence of variola, and a protection to the population, there is no affection in the whole category of zymotic diseases of more importance to public health.

If we turn to the classification of Willan (page 61), we shall see that the diseases collected into the group of zymotic affections are dispersed among three of his orders; namely, exanthemata, vesiculæ, and pustulæ; *exanthemata* taking possession of rubeola and scarlatina; *vesiculæ*, of varicella

and vaccinia; and *pustulæ*, of variola. The student will perceive that he is a gainer, as also are science and art, by an arrangement which brings the consideration of these diseases together on a single page.

Of the origin of the poison or poisons which give rise to the zymotic affections we know very little. We assume that they are of organic creation, and are derived from the same source as the poisons which produce the continued fevers; but we do know that they are highly infectious and contagious, and are actively transmissible from an infected to a sound person, both through the medium of contact, namely, immediate or direct infection or *contagion*, or through the intervention of the atmosphere, namely, mediate and indirect infection, or simply *infection*. Moreover, there seems to be good reason for the belief that there are three separate and distinct poisons, although arguments are not wanting for supporting the theory that one and the same poison, under the influence of different atmospheric conditions, and in different states of the body, may have the power of giving rise to the differences of character which distinguish the three diseases. Thus, when rubeola prevails as an epidemic, scarlatina is least frequent, and *vice versâ;* and occasionally, as in the spring of 1864, we meet with an epidemic, in which rubeola and varicella appear to be intermingled, and the same patient may experience in succession, an imperfect rubeola (rubeola notha) and a varicella.

The exanthema of the zymotic affections presents a curious difference of colour, which has suggested the term rubeola, ruby or raspberry-coloured, and scarlatina or scarlet-coloured, important diagnostic characters, depending possibly on a more sluggish circulation through the dilated cutaneous capillaries in the former, and a more active circulation through the latter; or upon some modification of the colouring principle of the blood by the poisonous ferment, such as occurs in association with the syphilitic poison.

The physiological relationship of the skin and mucous

membrane is amply illustrated by the zymotic affections; the mucous membrane of the fauces is congested in all the three diseases, but most in scarlatina; in rubeola the congestion elects for its principal seat the conjunctiva, the Schneiderian membrane, and the mucous membrane of the trachea and bronchial tubes; and the eruption of small-pox is met with in severe cases also in the mucous membrane of the mouth, fauces, and trachea. In general terms, rubeola may be said to attack chiefly the mucous membrane of the air-passages; and scarlatina, the mucous glands and the mucous lining of the mouth and salivary glands.

The exanthema, in its evolution on the skin, makes its first appearance on the face and neck, next on the trunk and upper extremities, and lastly reaches the lower limbs, and departs in a similar order, while the eruption is always most abundantly developed on parts exposed habitually to the action of the air, such as the face and the hands. At its decline the redness loses its vivid hue and becomes dull, subsequently purplish, and not unfrequently leaves behind yellowish, brownish, and greenish stains which call to mind the tints of a bruise.

Congestion of the vessels of the skin is necessarily attended with a certain amount of swelling, the skin is somewhat thickened, and the sub-cutaneous cellular tissue more or less infiltrated, sometimes to the extent of constituting œdema. Hence the features look swollen or puffed, the limbs are enlarged; and œdema may prevail in the latter to a greater or less extent. The sensations of the skin are a moderate degree of tingling and itching in the early stage of the eruption, subsequently heat, and when desquamation begins, a very troublesome degree of pruritus.

Another phenomenon accompanying the decline of the eruption is *desquamation* of the cuticle. The congestion of the skin causes a temporary suspension of the process of epidermal cell-formation; the epidermis loses its vitality, and is separated from the newly-formed horny tissue pro-

duced beneath it, and when the skin resumes its normal functions, the old cuticle is cast off in the form of exuviæ, of considerable extent; in scarlatina, the entire cuticle of the hands or of the feet is sometimes cast in a single piece, and the new and tender cuticle, showing through its transparent wall the pink hue of the derma, is seen beneath. The period of desquamation is with good reason regarded as a time of active transmissibility of the disease, for the cuticle is saturated with fluids produced during the most active period of the fermentation of the poison, and particles of exfoliated cuticle become so many vehicles of contagion.

In the normal course of the zymotic affections a full development of the exanthema is favourable to the safety of the patient; the disease would seem to expend its power upon the skin, and the action on the skin to divert the violence of the fever from the internal organs. Hence we regard with satisfaction a thorough development of the exanthema, while we perceive with apprehension the disappearance or retrocession of the rash after it has once broken out, and we employ all our efforts to restore it. All the three zymotic affections may exhibit the fever without the eruption; but in this case the fever is commonly mild, and the absence of eruption indicates only a mitigated form of the disease.

The zymotic fevers are to a certain extent protective of the constitution against a repetition of the disease, and persons who have once had rubeola, scarlatina, or variola, may be regarded as free from the danger of their recurrence; nevertheless, instances not unfrequently happen, in which patients have suffered more than once from these affections; more commonly, perhaps, in the case of rubeola than in that of scarlatina or variola. As a general rule, the second attack is milder than the first; but this rule is not without its exception. Moreover, different epidemics of these fevers have generally their distinguishing peculiarities, sometimes being more and sometimes less severe. And in each separate epidemic there is always great variety in the gravity of the

disease, some cases being very serious and others very slight, without any apparent reason for such difference of character. Sometimes an epidemic begins with moderation and closes with severity, and *vice versâ;* and at the tail of an epidemic of variola, varicella is more frequent than in the middle of its course. Hence the rise, the height, and the decline of an epidemic may present a considerable amount of variety.

RUBEOLA.

Rubeola, or measles, also called *morbilli*, is an eruptive fever attended with constitutional symptoms of fever, with an eruption on the skin of a punctiform and mottled rash or exanthema of a dull red or raspberry colour, and with congestion of the conjunctiva and mucous membrane of the nose and respiratory tubes.

The constitutional symptoms are the ordinary series of febrile symptoms, ranging from a scarcely perceptible disorder of the system to the highest degree of severity. They are lassitude, weariness, drowsiness, pains in the head, in the back, in the limbs, and chills succeeded by flushes of heat; the pulse is frequent; the tongue white, with red edges and tip; there is soreness of throat, thirst, loss of appetite, nausea, and sometimes vomiting; constipation, high-coloured urine, and a frequent dry cough. These symptoms increase in severity during four days, and begin to subside at the outbreak of the eruption.

The exanthema first makes its appearance in the mucous membrane; on the third day the conjunctiva is suffused, the eyelids are congested and swollen, and there is a copious distillation from the eyes and nose, constituting coryza. At the same time there is sneezing and cough, or catarrh, and the cough, dry at first, quickly becomes moist and mucous, with considerable expectoration. The voice is hoarse; the fits of coughing frequent and severe, and accompanied with tightness and more or less pain in the chest.

The eruption on the skin first appears on the *fourth* day, sometimes on the third, and more rarely on the fifth. It is seen in the first instance on the forehead, then on the front of the neck, on the cheeks, and around the mouth, and reaches its height in twenty-four hours. On the fifth day it invades the trunk and upper extremities; on the sixth, the lower extremities, in each instance reaching its height in twenty-four hours; and on the sixth or seventh day appears on the back of the hands. The decline of the efflorescence follows a similar course; on the sixth day it fades upon the face; on the seventh, upon the trunk and upper extremities; on the eighth, upon the back of the hands and lower limbs, and on the ninth day the form of the patches is discoverable only by a pale yellowish discoloration, which slowly disappears.

The exanthema of rubeola is a punctated rash, resulting from congestion of the capillary plexus of the follicles; the puncta are clustered into small oblong groups or corymbi, and are more or less blended in each corymbus by a moderate suffusion, resulting from congestion of the interfollicular capillary plexus. This arrangement gives a mottled appearance to the congested skin, which is pathognomonic of rubeola. Here and there some of the pores of the follicles are raised into minute papulæ, and on certain regions of the body, as on the face and limbs, these papulæ are more strikingly apparent than on other parts. Indeed, on the face, it is not uncommon to find a general suffusion, roughened by papulæ, the corymbose appearance being lost; and in general the mottled arrangement of the clusters is more constant on the trunk of the body than elsewhere. Added to the corymbose form of the exanthem, as diagnostic of rubeola, we have the dull red crimson colour which has been compared to that of the raspberry; and at the decline of the eruption the exfoliation of the cuticle in thin foliaceous plates and furfuraceous scales.

The normal course of rubeola presents a four-day premo-

nitory fever of moderate vehemence, a four-day exanthema, succeeded by a four-day decline, a subsequent exfoliation of the cuticle, and gradual return to health. It also brings before us an inflammatory congestion of the mucous membrane, beginning in the conjunctiva, the Schneiderian membrane, and the fauces, and running downwards along the trachea and bronchial tubes, accompanied with cough, dry and irritable at first, and subsequently moist and mucous, the mucus at the height of the disorder being raised in roundish pellets, termed *nummular* expectoration. Later in the course of the disorder the mucous membrane of the alimentary canal participates in the congestion, and relieves itself at about the ninth or tenth day by diarrhœa.

A review of the normal course of rubeola is suggestive of its complications; its possible dangers; and its subsequent evils denominated *sequelæ*. The first and most important of these is the affection of the lungs; the catarrh, the hoarseness, and the cough usually subside on the seventh day; but instead of subsiding, the bronchitis may increase and run on to pneumonia and permanent disease of the lungs; there may be purulent discharges from the eyelids and nasal passages, and even ulceration. The mucous membrane of the mouth, of the fauces, of the salivary glands, may become inflamed, and proceed to ulceration and suppuration; the mucous lining of the larynx may become swollen and œdematous, and threaten suffocation. The diarrhœa, which generally ceases spontaneously in a few days after the disappearance of the rash, may be prolonged, and occasion ulceration of the mucous glands, and even the mucous lining of the genito-urinary apparatus may suffer a similar disorganization. Moreover, as a secondary evil, the mesenteric and lymphatic glands may become enlarged and impervious, and lay the foundation of tabes and superficial abscesses; there may be tubercular deposits in the lungs and in the serous membranes, or there may be rheumatic inflammation of the joints.

The period which elapses between exposure to contagion and the commencement of the fever, usually termed the *period of incubation*, varies between seven and fourteen days, and the term at which a patient may be supposed to be free from the danger of communicating the infection, three or four weeks.

Rubeola is a disorder of childhood, rare in infants, but occasionally met with in the adult. It may happen a second or a third time, and without the modification which occurs in variola; indeed, it is more likely to be severe in the adult than in children. It makes its attack usually in the winter and early spring, at that period of the year when catarrhs are most frequent; and, as we have seen, the chief danger of the disease is the propagation of the catarrh and subsequent bronchitis and disease to the structure of the lungs. The differences of manifestation of the symptoms of rubeola constitute its *varieties*, which are as follows :—

Rubeola vulgaris,
„ sine catarrho,
„ sine exanthemate,
„ nigra.

Rubeola vulgaris represents the common type of the eruption, consisting of constitutional and local symptoms, pursuing the course already described. The constitutional symptoms may be mild or severe, the local symptoms developed to a greater or less degree, and the disease may subside at the end of twelve or fourteen days, with a gradual return to health. On the other hand, if the patient be exposed to cold, or neglected, the cough may increase, and the foundation be laid for a serious state of disease that may terminate fatally. With proper management, rubeola is commonly a mild disorder.

Occasionally the symptoms are so slight as to render it doubtful if the case be really one of rubeola; the exanthem is more or less fully developed, but the constitutional symp-

toms are almost absent. An epidemic of this very mild description prevailed in the spring of 1864, and the doubtful character of the disease suggested the term *rubeola notha*, or spurious rubeola, given to it by Dr. Babington.

Rubeola sine catarrho is an example of a mild form of measles, in which its more serious symptom, that of the affection of the mucous membrane of the air-tubes, is absent. In this case, as in rubeola notha, the constitutional symptoms are very moderate, although the exanthem may be fully developed. Rubeola sine catarrho is apt to occur more frequently at the beginning or end of an epidemic than during its height, and is met with in one or more members of a family wherein the rest pass through the disease in the ordinary way. Persons who have experienced this mild form of the complaint are more than usually liable to a subsequent attack of the disease.

Rubeola sine exanthemate, called by Sydenham "febris morbillosa," is a rarer variation of measles than the preceding, and a similar example of aberration from a normal standard, the peculiarity in the present case being the existence of the fever without the exanthema. Cases of this kind are also met with more or less numerously in the course of a rubeolous epidemic.

Rubeola nigra, or black measles, is a designation derived from the colour of the exanthem; the circulation through the cutaneous capillaries is slower than natural, those vessels are dilated, and the blood, robbing the tissues of their carbon, is converted into venous blood. The eruption, consequently, is purplish or livid in hue, and extravasations are apt to take place, which suggest the idea of purpura. Rubeola nigra is rare, and occurs for the most part in weakly and exhausted constitutions; and the constitutional symptoms are sometimes complicated by effusions into the cellular tissue and into the serous cavities.

Diagnosis.—In zymotic fevers, as in fevers in general, the medical man is attracted by the dulness, the listlessness,

and drowsiness of the patient. If, conjoined with these symptoms of depression of the powers of the nervous system, there be present coryza and catarrh, and the patient has not already had rubeola, suspicion becomes stronger, and is increased if a rubeolous epidemic is known to be in existence at the time. The fourth day of these symptoms is marked by the appearance of the rubeolous rash upon the face, and its dull red and raspberry-tinted colour places the question beyond further doubt: the case is one of rubeola.

Cause.—A special contagious principle or poison, sometimes sporadic, more frequently conveyed from one person to another, either by the atmosphere or by actual contact. Rubeola is the most contagious of the zymotic affections, and prevails most abundantly during the damp and cold seasons of the year, when catarrhs are frequent. Catarrh is a predisposing cause.

Prognosis.—Rubeola is of favourable augury, and when it occurs divested of irregularity of course and complications, is a mild disorder. It is serious only when neglected, and when there exists previous disease, particularly of the lungs.

Treatment.—As the issue of rubeola involves the safety of the lungs, the patient must be submitted to rigorous discipline, so far as the avoidance of chill is concerned. He must be kept in an apartment of equable temperature (about 60°), well ventilated, but protected from draughts of cold air. If the feverish symptoms be slight, he may be permitted to be up; but even with moderate fever he would be much better in bed, and kept as tranquil as possible both in body and mind. Too much care is a fault on the right side, provided that the apartment be not too hot nor the bedclothes too abundant.

The diet should be moderate and unstimulating: broths and farinaceous puddings; and if there be nausea and want of appetite, with a tendency to sickness, milk diet will be most suitable. Thirst may be assuaged with toast-water, with water acidulated with lemon-juice or tamarinds, or

containing from half a drachm to a drachm of chlorate of potash to the pint, or with simple barley-water. The state of the bowels and secretions must also be noted, and if there be constipation, some mild aperient may be administered, such as a senna or rhubarb draught; but the normal supervention of diarrhœa at the turn of the disease must be borne in mind. If the secretion of the liver be suspended, a small dose of calomel or grey powder may be requisite; and if the critical diarrhœa fail in its appearance at the decline of the disorder, a gentle aperient may be administered to supply its place.

The treatment of rubeola might be summed up in two words—WATCH NATURE, were it not for a knowledge which experience has given us with regard to a specific remedy, the carbonate of ammonia. As soon as rubeola is suspected or developed, and after a preliminary clearance of the alimentary canal by means of a mild purgative, five grains of carbonate of ammonia in solution in water, broth, or milk, may be administered every three hours; in severe cases it may be given oftener—every hour or every two hours; and when the symptoms subside, less frequently—namely, every four or every six hours, diminishing the frequency of the remedy by degrees, until health is restored. Dr. Charles Witt,* who is a zealous advocate of the ammonia treatment, suggests that acids should be abstained from during its use.

When the ammonia treatment is not adopted, the best remedy is the liquor ammoniæ acetatis, ʒij., with or without nitric ether (ʒiss.), and camphor mixture (ʒj.); and where the bronchitis is troublesome, a few drops of ipecacuanha wine (mx). Or the practitioner may prefer effervescent salines, with diaphoretics, with which may be combined, if necessary, saline aperients.

The local treatment of rubeola is best provided for by

* "An Effectual and Simple Remedy for Scarlet Fever and Measles, with an Appendix of Cases." Third edition, 1862.

keeping the body covered with bedclothes, and preserving a temperature agreeable to the sensations of the patient; but where there exist pruritus and uneasiness of the skin, and when desquamation has commenced the pruritus is often very troublesome, the skin should be anointed with some simple oleaginous substance, such as lard. The lard should be applied with gentle friction to the whole body, exposing as little of the skin as possible during the operation, and the inunction may be repeated every twelve hours, or oftener if the itching should return.

During convalescence, the preservation of a wholesome temperature of the body, by means of warm clothing, is especially important, as neglect of proper precautions at this period is a common cause of the serious sequelæ which sometimes follow measles. Indeed, the necessity of shielding the patient from exposure in zymotic diseases cannot be too strongly impressed upon the mind of the student.

The leading complications of rubeola are: retrocession or sudden disappearance of the exanthema, severe bronchitis, pneumonia and œdema of the glottis, inflammation and ulceration of the conjunctiva, inflammation of the ear-tubes with muco-purulent discharge, ulceration of the mucous glands of the mouth, inflammation and enlargement of the salivary glands, chronic diarrhœa, dysentery, and rheumatism of the joints.

Retrocession of the eruption is to be treated by the application of stimulants to the skin, either stimulating liniments, such as ammonia or cajeput, or mustard, spongiopiline saturated with a solution of mustard, or the spiritus sinapis, mustard poultices, or the ammonia bath.

Bronchitis, pneumonia, and the sequelæ involving the mucous membranes, the synovial membranes, and the glands, must be treated like independent inflammations of those organs, and in every instance the treatment must be combined with counter-irritation. It may be necessary to apply a blister for a longer or shorter period, and follow the blister

with a poultice, or with inunction and cotton wool; or we may prefer the counter-irritant action of the compound tincture of iodine, or a saturated tincture.

SCARLATINA.

Scarlatina, or scarlet fever, is an eruptive fever, attended with constitutional symptoms, with an exanthema or rash of a scarlet colour, partly papular and partly suffused, and with an inflammation of the fauces (angina) of greater or less severity. It is highly contagious, is developed between the second and tenth day after infection or contagion, has a normal course of nine or ten days, and terminates in desquamation of the epidermis.

The constitutional symptoms are similar to those of rubeola: lassitude, weariness, drowsiness; pains in the head, back, and limbs; rigors, flushes of heat, nausea, and rapid pulse. To these, which are the symptoms of invasion, there speedily follows a general febrile reaction; the eyes are bright and humid, but without lacrymation; the features are swollen; the tongue is white and moist in the middle, but red at the edges and tip, and studded with red papillæ; the fauces are red and inflamed, the tonsils enlarged; there is a short and dry cough, thirst, constipation, and high-coloured urine.

Immediately preceding the outbreak of the rash there are frequently, restlessness, anxiety, sometimes convulsions, and sometimes delirium; these symptoms are relieved by the eruption. The fever is generally augmented towards the evening, and not unfrequently there is an exacerbation of its symptoms at the beginning of its decline.

The exanthema, or rash, makes its appearance on the second day of the fever; the surface of the body is hot and dry, more or less swollen, especially that of the face, hands, and feet; and there is a sense of tingling and itching of the skin. It is first apparent on the face, the neck, and chest;

on the second day it reaches the trunk and upper extremities; and on the third day the lower extremities; on the third or fourth day it arrives at its height, and on the fifth begins to decline, following the same order as that of its invasion. The decline continues during the sixth and seventh day, and on the eighth and ninth is followed by desquamation and exfoliation of the epidermis.

On close inspection of the exanthema it is found to be composed of minute puncta and papulæ, blended by a superficial suffusion; on the face and limbs the suffusion is uniform, but on the trunk the rash is more or less patchy, and is always more vivid on the loins, the nates, and around the joints, than elsewhere. Sometimes, and constantly in certain regions of the body, the exanthema is smooth, from the presence of a moderate degree of œdema of the skin,—this is the *scarlatina plana vel lævigata;* at other times, and in other situations, it is rough and papular,—*scarlatina papulosa vel milliformis;* and occasionally, but very rarely, there may exist an intermingling of vesicles or pustules,—*scarlatina vesicularis, vel phlyctænosa, vel pustulosa.* The rash is always brighter and more vivid in the evening, when the fever is highest, than at any other time of the day.

Scarlatina makes its attack between the second and tenth day after exposure to contagion; the exanthema begins on the second day of the fever, and lasts commonly for seven days, making the whole period of the active stages of the disease nine days. On the third day of the fever the exanthema extends to the eyes, nose, and mouth, causing congestion of the mucous membrane.

Scarlatina, like rubeola, is remarkable for its extreme variation of intensity, being sometimes so mild as to be a mere trivial disorder, almost without constitutional symptoms of any kind, and at other times so severe as to be rapidly fatal. Where the exanthema is fully developed, the febrile symptoms are for the most part mild; but the most severe form of the disease is that which is accompanied with

much congestion of the mucous membrane, and particularly of the fauces. The varieties of scarlatina are founded on these differences of character: the more simple form, that in which the exanthema is fully developed and the mucous congestion moderate, is termed *scarlatina simplex*, while the scarlatina attended with a severe congestion of the mucous membrane of the fauces, is the *scarlatina anginosa*. Another form of the disease is termed *scarlatina maligna*, from the dangerous nature of the affection of the throat; while a fourth is distinguished by general mildness, and by the absence of exanthema,—*scarlatina sine exanthemate*. Other modifications are also occasionally met with; a child may pass through a mild form of the disorder, and in the midst of convalescence may be attacked with a severe form; the former may present as its leading feature exanthema, the latter angina. Dr. Sims has recorded such a case, and we have seen a similar one. Sometimes scarlatina is accompanied with acute pains in the joints or in the head, and sometimes with a troublesome cough. And occasionally there is met with a form of the affection, termed *scarlatina latens* by Copland, in which the exanthem and angina may both be absent, and the disease manifested only by one of its sequelæ, such as dropsy.

In its most favourable form scarlatina expends its violence chiefly on the skin and mucous membrane of the fauces, and then gradually subsides; but when it is interrupted in its course, when the cutaneous rash is accidentally checked, in an unhealthy constitution or unfavourable season, or when the prevailing epidemic assumes a severe character, several organs of the body are liable to be endangered by its violence; the most important of these, after the glandular structures of the throat, being the kidneys, the pericardium, the joints, and the mesenteric glands.

The morbid phenomena which follow an attack of scarlatina are termed its *sequelæ*, and are sometimes referrible to the violence of the inflammation attacking the skin, as in

the case of œdema of the subcutaneous tissue, and mortification of parts of the skin; sometimes to a similar morbid action taking place in the mucous membrane and resulting in chronic conjunctivitis, chronic otitis, loss of hearing, and suppuration from the ears, ulceration within the nares, ulceration of the mouth and lips, ulceration of the fauces and larynx, inflammation and suppuration of the salivary glands, chronic bronchitis, chronic diarrhœa, and mortification of the vagina or rectum; sometimes to inflammation of the lymphatic system, such as enlargement of the lymphatic glands of the neck and mesenteric glands; sometimes to inflammation of the serous membranes, as of the pericardium, the peritoneum, or the synovial membranes, and sometimes to inflammation of the kidneys, inducing anasarca and dropsy.

Inflammation of the kidneys is possibly the most serious of the sequelæ of scarlatina, and is commonly induced by too early exposure of the body to cold or damp after the decline of the fever. It is apt to occur between the tenth and twentieth day, sometimes earlier, is preceded with heaviness, headache, restlessness, and symptoms of constitutional disturbance; and these symptoms are quickly followed by œdema, commencing in the face and lower limbs, and extending by degrees to the whole body; the belly is swollen, and the urine, scanty in quantity, is commonly found to contain albumen, blood particles, and cellular detrita from the tubuli uriniferi.

Anasarca sometimes results from simple anæmia, and happens in weakly and lymphatic children; in this affection there are no special symptoms of constitutional disturbance, and the urine is very little altered in quantity; it is pale, and contains neither albumen, blood particles, nor epithelial cells.

The varieties of scarlatina arranged in tabular order are as follows:—

Scarlatina simplex,
„ anginosa,
„ maligna,
„ sine exanthemate.

SCARLATINA SIMPLEX is the typical form of the disease, in which the constitutional and local symptoms are moderate, and run a regular course. As already remarked, the constitutional symptoms are sometimes so slight as hardly to deserve the name of fever, while the exanthema is fully developed. This is the most desirable combination for the patient, but nevertheless requires the same caution in management as the more severe forms. There is always congestion of the fauces, even in the mildest variety of scarlatina, and in scarlatina simplex there exists a moderate amount of swelling of the mucous membrane and sore throat.

SCARLATINA ANGINOSA is distinguished by a predominance of sore throat, and a more severe type of the disease, more constitutional disturbance, more local suffering, and an irregular exanthema, deficient in amount of cutaneous congestion, and imperfect in its course.

The fauces are inflamed from the beginning of the disease, and often before the constitutional symptoms are developed; by the second day after invasion the voice is hoarse, the throat feels rough, there is an accumulation of viscous mucus on its surface, deglutition is painful and difficult, and there is a sense of constriction and tightness, that extends from the throat itself to the surrounding part of the neck and to the muscles of the jaws. During the third and the fourth day the redness, the swelling, and the constriction increase, the uvula and tonsils are so much swelled as to block up the isthmus faucium almost entirely, patches of false membrane appear upon the inflamed surface, and the membrane covered by these patches is apt to pass into a state of superficial ulceration. The tongue is coated with white mucus, and studded over with papillæ of a vivid red colour.

These symptoms are accompanied with nausea, rapid respiration, a quick feeble pulse, parching heat of skin (104° —108°), restlessness, great debility, headache, and often delirium.

The exanthema is sometimes retarded to the third day of

the constitutional symptoms, is irregular in the order of its appearance, and deficient in the amount of cutaneous congestion, showing a patchy redness over the greater part of the body, and a more uniform redness only around the joints. It sometimes disappears for a day, and returns, remains later than in scarlatina simplex, and is succeeded by a less perfect desquamation.

The decline of the exanthema commonly takes place on the fifth or sixth day, and at the same time the mucous membrane of the fauces begins to improve, the swelling subsides, the sloughs separate, and the surface assumes a more healthy character. The restoration of the fauces, however, is a gradual process, and where ulceration has taken place and the powers of the constitution are low, it may be delayed for several weeks.

Scarlatina maligna, or putrid sore throat, is a scarlatina anginosa, attended with extreme prostration of the nervous system, with extensive and deep ulceration of the fauces and adjacent parts, and with an imperfect and partial exanthema. It occurs under the influence of an unhealthy state of constitution of the individual, or of unhealthy hygienic conditions, is highly dangerous, and commonly fatal.

This form of scarlatina is sometimes met with in the course of an ordinary epidemic, and sometimes prevails as the leading type of the epidemic. It is marked from the beginning by prostration of power, feeble pulse, restlessness, anxiety, and delirium. The fauces are not swollen, but are deeply and extensively ulcerated; the whole mouth is inflamed and aphthous, the tongue swollen and ulcerated, the pharynx and larynx loaded with viscous phlegm, more or less ulcerated, and the respiration quick and obstructed. The ulceration frequently becomes sloughing, the breath is excessively offensive, the eyes are red and sunken, an acrid discharge distils from the nose, the ears are affected with deafness, the tongue and lips are covered with a dark-brown or black sordes, and deglutition is painful and difficult. Sometimes

there is diarrhœa, sometimes hæmaturia, and the scene closes in coma. Scarlatina maligna often proves fatal on the second or third day, and after death extensive ulceration is found to have occurred in the fauces, larynx, trachea, lungs, œsophagus, and alimentary canal.

The exanthema in scarlatina maligna is uncertain, irregular, and incomplete; it is late in its appearance, often pale and indistinct, generally purple or livid, sometimes patchy, sometimes accompanied with petechiæ, and sometimes disappears in a few hours after its outbreak. Occasionally, after having wholly disappeared, it returns at the end of a week, and remains for two or three days, and sometimes it has been observed to return again at the end of another week.

Scarlatina sine exanthemate is a variety occasionally met with in the course of an ordinary epidemic; the fever and angina are present, but there is no exanthema. This form of the disease sometimes attacks the adult, or occurs in a child who has gone through the eruption in the ordinary manner. The symptoms are generally mild in character.

Diagnosis.—The pathognomonic characters of scarlatina are, in the first place, the acute congestion of the fauces; secondly, the early development of the exanthem; and thirdly, the scarlet colour, and diffused or patchy character of the rash. It is distinguished from rubeola by the absence of coryza and catarrh, and by the different colour of the exanthem; and from variola, by the absence in the latter of angina and the development of the eruption in the form of isolated papulæ. Rubeola is more contagious than scarlatina, and more likely to appear a second time; the desquamation of scarlatina is more laminated and less furfuraceous than that of rubeola, and the early symptoms of variola are accompanied with a severe pain in the loins, which is absent in the other zymotic fevers.

Cause.—The cause of scarlatina, as of rubeola and variola, is a specific poison. Like rubeola, it is favoured by a cold

and humid state of the atmosphere, and is therefore more common in the spring and autumn than at other seasons of the year. It also resembles rubeola in being a disease of childhood, although occasionally attacking the adult. It is somewhat less contagious than rubeola, and less disposed to affect the same person a second time. As a rule, scarlatina, rubeola, and variola, when they have once run their course regularly, are not subject to recurrence; this, however, is a rule with many exceptions, but less in the case of scarlatina and variola than that of rubeola. Patients under scarlatina are, at all periods of the fever, capable of communicating the contagion, but most so during the stage of desquamation, and after convalescence they require seclusion for a month or six weeks.

Prognosis.—Scarlatina is always grave; if not in its immediate symptoms, it is so in the liability to disease of important internal organs, for example, the kidneys. Nevertheless, scarlatina simplex is sometimes so slight as to disarm apprehension; not so the anginous form, which is always alarming. Sometimes the constitution of the patient is, as it were, overwhelmed with the poison, and death occurs in a few hours. Scarlatina is also rendered dangerous by retrocession, by the early evidence of weakness and prostration, by a livid appearance of the throat, and by complication with organic disease. It often deals severely with adults, especially with pregnant and recently-confined women, and, according to the observation of Dr. Peter Hood, is generally more severe in children with dark eyes and complexion than with their brothers and sisters of blue eyes and fair complexion.

Treatment.—On the bare suspicion of scarlatina, and certainly as soon as the disorder is declared, the patient should be put to bed; he should be kept quiet; the bedclothes should be light, but sufficient; the apartment darkened, kept at a reasonable temperature, and properly ventilated. Two points should be looked to with especial atten-

tion,—the avoidance of light, heat, bustle, noise, and conversation, which are calculated to excite the nervous system of the patient; and the avoidance of draughts of cold air, which might check the development of the exanthema, or, when developed, might cause its retrocession. The patient's head should be well raised on the pillow, and kept cool, and his body and feet warm.

The diet should consist of milk, tea, broths, farinaceous puddings, and cooling and refreshing drinks, such as toast-water, lemonade, tamarind-water, soda or seltzer-water, or a weak solution of chlorate of potash, acidulated with hydrochloric acid.

The medicines likely to be required are a mild purgative, to remove irritating ingesta or acrid secretions from the alimentary canal, and, a few hours later, a saline and diaphoretic mixture, composed of liquor ammoniæ acetatis vel citratis, spiritus ætheris nitrici, and mixtura camphoræ, administered every four hours. The best purgatives for the purpose indicated are the compound jalap powder, senna, or rhubarb. And great care must be taken during the action of the bowels that the patient be not exposed to chill. In cool weather a woollen gown would be preferable to one of lighter material, and the bedclothes must be accommodated accordingly.

We must confess to a strong leaning in favour of the ammonia treatment, and, instead of salines, we would begin from the first with a solution of the carbonate of ammonia, two or three grains for a child under seven years of age, and four or five grains above this age, or for an adult; the dose should be dissolved in from two to four drachms of water, and administered every two, three, or four hours, according to the degree of severity of the fever; in very severe cases, every hour. The advocates of the ammonia treatment* at-

* Vide "An Effectual and Simple Remedy for Scarlet Fever and Measles," by Dr. Charles Witt.

tribute to it the most happy properties: it calms irritability, tranquillizes the nervous system, induces sleep, promotes the exanthema, subdues fever, heat, and delirium, and soothes the throat and alimentary canal. And to these virtues we may venture to add that it diminishes the quantity of viscous mucus secreted by the mucous membrane of the fauces. This treatment, however, is not intended to supersede the necessary daily attention to the secretions, and the use of tonics when they seem to be required.

Dr. Peter Hood, in an excellent monograph on scarlatina, advocates a method of treatment which he has found in the highest degree successful. Attributing the nausea, which so constantly attends the invasion of scarlatina, to the presence of irritant matter in the stomach, he begins with an emetic composed of ipecacuanha and sulphate of zinc, the dose for a child of six years being ten grains of each, and follows the emetic with as much warm water as the child can be made to drink. After the action of the emetic has subsided, he administers a purgative of scammony and calomel (gr. vj.), and by way of stimulating the emunctory action of the liver and alimentary canal, he continues the purgative every night, in modified doses, so as to secure one proper evacuation daily. With children who can swallow a pill he varies the remedy by prescribing grey powder with extract of henbane and the compound rhubarb pill; and when the tongue is clean he has recourse to simple rhubarb or castor-oil as a laxative, or any simple medicine; but as long as the tongue remains coated, which he takes as an evidence of the presence of morbid secretions in the stomach and alimentary canal and morbid action of the liver, he adheres to the mercurial in one form or another. And he keeps up the proper action of the bowels by this means throughout the whole course of the disease.

The alimentary canal being kept to its duty, his next remedy—the staff of his treatment—is quinine; the dose, one or two grains every four or six hours. He combines the

quinine with eight or ten minims of dilute sulphuric acid and half a drachm of compound tincture of bark or orange-peel. He very justly observes that quinine alone, without the eliminatory action of the bowels, would be injurious, but that the combined action of the two kinds of remedy, with proper attention to diet and regimen, is calculated to subdue all the more grave symptoms of the disease, and bring it to a favourable termination, and without the danger of the *sequelæ* which render scarlatina so formidable. The student will be struck with the solid sense of this view of the "quinine treatment" of scarlatina, and will doubtless profit by Dr. Peter Hood's experience.

Dr. Hood is careful to maintain a liquid diet for his patients; the chief support being milk, sopped bread, and beef tea. Solid food is prohibited until the tongue is clean, and has remained so for a few days; and bed is to be maintained until the desquamation is over. Wine he allows to adults, but does not think desirable for children, excepting in the malignant variety of the disease, and where prostration of power is apparent. Where there is restlessness and irritability, with a clean tongue and want of sleep, he prescribes Battley's solution of opium (♏ v. ad æt. 4); for dirty-water stools, he adds a few grains of aromatic confection, with tincture of cinnamon and cinnamon-water; and for irritability of heart's action at the close of the fever, he orders one grain of Dover's powder, with half a grain of powder of conium, every four hours, followed in an hour by a draught of supercitrate of potash and sweet spirits of nitre.

Burning heat of the skin is sometimes a very distressing symptom to the patient in scarlatina, and we are called upon to prescribe a remedy. Sponging with warm vinegar is sometimes used for this purpose; we have usually given the preference to sponging with a tepid solution of ammonia of moderate strength; but the remedy which is best of all suited to effect the object, is inunction with warm lard. The lard should be gently but well rubbed into the skin night

and morning, beginning with the limbs, and passing thence to the trunk of the body, and at the same time avoiding the exposure of a larger surface than that immediately under the operation. The inunction may be made more pleasant by the use of benzoated lard; but common lard answers every purpose. This simple remedy not only relieves the heat and irritation of surface, but tranquillizes the whole nervous system, fixes the exanthema in the skin, assists desquamation, reduces the tendency to congestions of internal organs, and diminishes the liability to the diffusion of contagion.

At the decline of the disorder, when convalescence is established, the patient's strength may be helped with mild tonics, such as the citrate of iron alone, or with quinine; a more generous diet, meat, and a little wine. He should be kept in bed as long as possible, and still longer to his room, and on resuming his ordinary dress should be warmly clothed in flannel, with a view to prevent secondary complications, which are often more dangerous than the original disease.

The angina of scarlatina is generally the most difficult part of the treatment of the disorder; the swelling of the fauces renders deglutition painful and difficult, and also impedes respiration; and the swelling of the salivary glands and adjacent parts impedes the opening of the jaws, and often seriously interrupts the circulation through the brain. This state of things has led to the suggestion of leeches behind the ears, or in the submaxillary region, and also to that of blisters; but both these remedies are highly objectionable, and should be avoided if possible. Loss of blood, by adding to the extreme weakness of the patient, might be fatal in its effects, and the irritation of blisters might increase the inflammation of the fauces. We have found inunction with lard, and a covering of cotton wool, a good substitute for both. Dr. Peter Hood recommends linseed poultices as hot as they can be borne, and repeated as often as they cool;

while, for counter-irritation, we should prefer the compound tincture of iodine to the blister.

The remedies applicable to the fauces directly are gargles and the nitrate of silver, either in the solid form or in strong solution. The stick of nitrate of silver may be used at the outset of the congestion of the throat, with the view of changing the morbid inflammation into one of a more healthy character; and for this purpose the solid stick is more serviceable than a solution. If the latter be preferred, its strength must be from twenty to thirty grains to the ounce, and it should be applied by means of a piece of sponge firmly fastened to the extremity of a handle. Not unfrequently the patient is unable to use a gargle, and then it must be injected into the mouth by means of a syringe. For removing viscous mucus and sordes from the mouth and fauces, a small piece of sponge is the best instrument, and the sponge may be previously moistened with one of the solutions intended for rinsing the mouth. The solutions the best adapted for gargles are sulphuric acid, the chloride of sodium, the hypochlorate of ammonia, the permanganate of potash, the chlorate of potash, and the chlorine solution developed by the combination of chlorate of potash and dilute nitric acid—one drachm of each to eight ounces of water—or by the mixture of chlorate of potash and strong hydrochloric acid. All these gargles have the advantage of being innoxious or even beneficial when swallowed; and while acting the part of moderate stimulants to the mucous membrane, they also correct fœtor. Dr. Peter Hood eschews the nitrate of silver, excepting in ulceration; and for a gargle generally pleasant to children, and soothing to the throat, recommends a pint of *thick* barley-water, with one ounce of lemon-juice and half an ounce of honey.

As a curative remedy, the most important of all is the solid nitrate of silver, and this should be applied twice in the day, and efficiently. Occasionally it is found desirable to have recourse to steaming the throat by inhalation, and

we have seen great comfort derived from the inhalation of the vapour of ammonia.

In retrocession of the exanthema we may have recourse to the hot bath, and may very advantageously add a handful of mustard to the bath. We have already remarked that the chances of retrocession are very much diminished by the employment of inunction, and would suggest as a general stimulant of the skin, in the case of that event, a bath at 100°, containing an ounce of strong solution of ammonia to the gallon,* or where the bath was impracticable, sponging the skin with water of the temperature of 120°, containing one ounce of strong liquor ammoniæ to the quart. After the bath or sponging, the inunction with lard might be repeated very advantageously.

Where the head is much affected, as with severe pain and delirium, it will be necessary to crop the hair closely, and apply ice to the scalp. A blister on the nape of the neck or behind the ear has also been recommended, and counter-irritation of the feet and lower limbs. When the pulse is strong and hard, leeches have been suggested. These are questions which must be left to the judgment of the practitioner; but it is desirable in such cases to be assured that the cerebral congestion does not proceed from irritant matter in the alimentary canal. Dr. Peter Hood favours an emetic where that is the case, and regards the cerebral congestion as sympathetic; on the same principle, an active purge might be found useful.

When the presence of anasarca indicates congestion of the kidneys, the treatment consists of counter-irritation of the skin and alimentary canal, and the use of diaphoretics and mild diuretics. The patient must be placed in a warm bath (90°—98°), containing ammonia, twice a day; inunction must be performed after the bath. A purgative of com-

* See a paper by Mr. Grantham, of Crayford, "On the Therapeutic Effects of Ammonia as a Dermic Agent in the Treatment of Disease."—*Medical Gazette.*

pound jalap powder with calomel, must be administered, and repeated if necessary; the region of the loins should be painted with compound tincture of iodine, saturated with iodine; and gentle diuretics, such as the bitartrate of potash, citrate or acetate of potash, combined with the liquor ammoniæ acetatis and digitalis, and saline aperients, should be exhibited internally.

When the anasarca results merely from anæmia, the proper remedies are chalybeate tonics, such as the citrate or tartrate of iron, with quinine, or the tincture of the hydrochlorate of iron.

In *scarlatina maligna*, the indications for treatment are the restoration and support of the vital powers, and the local relief of the fauces and the skin. For the maintenance of general power, the nourishment should be of the best kind; for example, essence of meat, and port wine, administered alternately and frequently. Any gastric irritation from accumulated ingesta or acrid secretions, should be prevented by mild but efficient remedies. The best tonics are the liquor cinchonæ with sulphuric acid, tincture of orange-peel with nitromuriatic acid, hops, cascarilla, canella, &c. The liquor cinchonæ may be administered very advantageously in port wine. Ammonia also is as applicable to the malignant form of scarlatina as to the simple kind, and the drink of chlorate of potash (ʒj ad ʒxvj), recommended by Dr. Hunt, or the euchlorine mixture (potassæ chloratis, acidi nitrici diluti aā ʒj, aquæ ʒviij).* The fauces and mouth should be gargled or syringed with the euchlorine solution, or with a simple solution of chlorate of potash, carbonate or hydrochlorate of ammonia, or common salt. These solutions may also be injected into the nostrils, to relieve the Schnei-

* The formula recommended by Dr. Watson is a very useful one: Potassæ chloratis ʒij, dissolved in ʒij of hydrochloric acid, diluted with ʒij of water, kept in a stoppered bottle and in a dark place. Of this mixture, ʒij may be added to one pint of water, and a dose of half an ounce or an ounce given every hour or two hours.

derian membrane, and reach the back part of the palate. Considerable benefit also is derived in some cases from the inhalation of the vapour of vinegar or ammonia. For the heat and parched condition of the skin, the best treatment is sponging with warm vinegar, or a moderately strong lotion of ammonia (℥j—℥ij liquor ammoniæ ad aquam ℥viij), and afterwards applying the glycerine paste with gentle friction.

Scarlatina sine exanthemate must be treated, in regard to its severity, according to the principles already laid down; in mild cases the warmth of bed and a flannel shirt may be sufficient to draw forth the exanthema, or if the nervous system or mucous membrane seem to be suffering from its absence, the skin might be stimulated by the ammonia lotion used warm, the ammonia bath, or a hot bath with mustard, anointing the skin afterwards with warm lard, applied with moderate friction.

The more serious of the *complications* of scarlatina manifest themselves in the form of affections of the brain, the larynx, the lungs and pleura, the pericardium, the alimentary canal, the liver, the kidneys, the peritoneum, and the joints. Affection of the brain is shown by delirium and coma, and these symptoms may result from congestion of the brain, independent of much inflammation of the fauces; congestion from mechanical interference with the circulation where there is much swelling of the throat; and congestion from irritability. In all these instances the counter-irritation of a blister may be necessary, and in the two former a few leeches may be serviceable. In the last of the three we shall gain more advantage from the use of sedatives. In all the ammonia treatment is especially valuable. In the other local affections counter-irritation is an important remedy, and in extreme cases the use of a few leeches. When the mucous membrane of the larynx, besides being congested, is swollen from œdema, tracheotomy may become necessary. In congestions of the thoracic organs, our remedies are the same, while in diarrhœa we may derive a great amount of

relief from a large poultice, or from inunction and cotton wool, while the counter-irritant action of ammonia may, at all times and in every situation, be resorted to. In affections of the joints the lard inunction and cotton wool are very useful; and in ulceration of the fauces, the nitrate of silver either in solution or fine powder puffed upon the sores.

VARIOLA.

Variola, or small-pox, is an eruptive fever, attended with general symptoms of fever, the result of the presence of the variolous poison in the blood, and with the development on the skin of an eruption which runs rapidly through the punctated, papular, and vesicular stages to that of a pustule. It is infectious, occurs commonly as an epidemic, is accompanied with congestion of the mucous membrane, particularly of the respiratory passages; and is apt to leave behind permanent pits and cicatrices on the skin.

The constitutional symptoms of variola are the ordinary series of symptoms accompanying the invasion of fever; for example, depression of spirits, weariness, prostration of power, somnolence, restlessness, rigors; pains in the head, in the limbs, and in the loins; quick small pulse, hurried respiration, thirst, loss of appetite, white coated tongue dotted with red papillæ, nausea, sometimes vomiting, tenderness of epigastrium, constipation, and scanty and high-coloured urine. The skin is hot, the conjunctivæ suffused; there is sometimes cough, sometimes oppression of breathing, occasionally lethargy or coma; and in young children convulsions. The tongue, white at first, soon becomes red at the tip, and afterwards red over the entire surface. The pain in the loins is regarded as pathognomonic, and is supposed to indicate congestion or irritation of the kidneys; and the general symptoms, as in most other fevers, exacerbate in the evening.

The period which ensues between the reception of the

infection and the onset of the constitutional symptoms is termed the period of *incubation*, and varies in duration from five to twenty days, and sometimes more. The early constitutional symptoms comprise the period of *invasion;* and these are followed at the end of two to four days by the period of *eruption.* The eruptive period continues five days, and is succeeded by the period of *suppuration* or *maturation*, the period of *desiccation* of the pustule, and the period of *desquamation.* The three latter periods occupy each three days, making the entire period of the eruption from its first outbreak to the fall of the scabs fourteen days.

The fever of variola is somewhat increased at the moment of outbreak of the eruption, as though nature were putting out all her strength to cast forth the poison from the blood; and is relieved as soon as the eruption is fairly established. The sense of oppression, the nausea, and the sickness are reduced, and the pulse acquires a more healthy tone. The remission of the fever continues for seven days, and until the completion of maturation on the eighth day; on this latter day the local congestion of the skin is at its height; the mucous membrane participates in the congestion and suffering; the secondary fever sets in; there is depression of the nervous system, delirium, often brown tongue, and symptoms of typhus; sometimes cough and hæmoptysis, and occasionally hæmaturia. This severe exacerbation of the fever lasts from the eighth to the eleventh day, and then begins to amend.

The exanthema of variola commences with the well-defined red *puncta* of follicular congestion; the apertures of the pores are raised and hard to the touch, and are quickly transformed into conical *papulæ.* The papulæ or vari soon become vesicular at their points, and the *conical vesicles*, spreading by their base and swelling at their circumference, are flattened at the summit and depressed or umbilicated at the centre, constituting *umbilicated vesicles.* At the first

appearance of the puncta the skin is of a bright red colour, somewhat swollen and generally suffused; but as the development of the vari and vesicles proceeds, the redness becomes more concentrated around these points, and forms an areola to each of the vesicles. The contents of the vesicles are in the first instance colourless and transparent, then opalescent and milky, and finally are changed into pus; and the vesicle is thereby converted into a pustule. The formation of pus commences on the sixth day and continues until the eighth day, when suppuration is complete and the pustule attains maturity. The conversion of the contents of the vesicle into pus is attended with a change in its form; it loses its umbilicated figure, and becomes hemispheroidal. At the maturity of the pustule, namely on the eighth day, the skin of the whole body is swollen; it is vividly red; there is a painful feeling of tension and throbbing; and the congestion of surface extends to the mucous membrane. The swelling begins in the face and head, and descends to the body and limbs, and lastly to the feet and hands. The eyelids are often so much swollen as to bury the eyes, the nose is tumefied and distorted, and the lips distended and enlarged. With this severe stage of inflammation of the skin the general system participates, and the period of secondary fever, lasting from the eighth to the eleventh day, is established. The period of *desiccation* of the pustules, extending from the ninth to the eleventh day, and commencing a day earlier in the face than on the rest of the body, is marked by a subsidence of the tumefaction of the skin, and the presence of considerable itching. At this period it is difficult to prevent the patient from breaking the pustules by scratching; when so injured they bleed, and the drying of the blood gives rise to black scabs. When the scabs fall off naturally on the twelfth and following days, the base upon which they rested is depressed and presents a vivid red colour, and the redness remains for several weeks. The epidermis exfoliates in successive layers,

and the pits and cicatrices left by the pustules assume a more or less permanent character.

The exanthema makes its first appearance around the lips and upon the forehead, then spreads over the face, the neck, and arms, and finally invades the trunk and lower extremities. Instead of occupying four days, as in the case of rubeola, or two days, as in scarlatina, the whole surface is invaded, in variola, in twenty-four hours. The puncta and granular summits of the follicles are visible on the first day; on the second, the granular pores have become vari; on the third day, vesicles. During the third, fourth, and fifth days, the vesicles have become umbilicated, from the greater distension of the circumference than of the initiatory centre; and on the fourth and fifth days the areola around the vesicles is clearly defined; on the sixth, seventh, and eighth days, the contents of the vesicles are changed into pus; they lose their flattened and umbilicated figure, and become hemispheroidal, and they attain their maturity on the eighth day. On the ninth day some of the pustules burst, while the rest begin to dry up; and on the eleventh day the greater number of the pustules are converted into dry scabs, which are cast by desquamation during the twelfth, thirteenth, and fourteenth days, some retaining their adhesion to the skin for a week or ten days longer. Suppuration commences in the face, and thence extends to the body and limbs, making its appearance last on the feet and hands.

The mucous membrane of the respiratory passages and alimentary canal participates in the congestion of the cutaneous surface from the outset; the conjunctiva is suffused; the fauces, mouth, and pharynx are red and swollen; there is soreness of throat in swallowing, hoarseness of voice, a dry cough, often impeded respiration; and the tongue, white and coated at first, is subsequently red and swollen. At the period of eruption white spots are sometimes seen upon the mucous lining of the mouth, the representatives of the pustules on the skin, and they are apt to be developed on the

tongue, in the pharynx, and in the larynx and trachea. On the eighth and three following days, the congestion of the mucous membrane is very much increased, and in the adult there is often salivation, from the extension of the congestion to the salivary glands; at this period, also, there may be present a troublesome cough, diarrhœa, sometimes hæmoptysis, and sometimes hæmaturia.

Watched from day to day, the symptoms of variola will be found to be as follows: from two to four days of fever, suggesting the presence of a poison in the blood oppressing the nervous system, and marked by pain in the loins; on the last day an augmentation of these symptoms, associated with redness of skin and the appearance of red puncta around the mouth, upon the forehead, and upon the face and neck. This is the *first* day of eruption; the puncta are developed over the entire body in twenty-four hours, are granular to the touch, and assume the appearance of minute papulæ, while the constitutional symptoms suddenly abate. From the second to the seventh day the eruption occupies the chief attention; during the third and fourth days the papulæ become vesicular at their points, the vesicles enlarge and are umbilicated, and their contents change from a colourless to an opalescent lymph; on the sixth and seventh days the vesicles lose their umbilicated form, they become semi-globular, and their contents are converted into a yellow pus. On the eighth day the height of suppuration is attained; the integument is hot, red, and swollen; the mucous membrane of the respiratory passages and alimentary canal participates in the surface congestion, and the febrile symptoms suddenly rise to a serious height, constituting the secondary fever. On the ninth and following day the pustules desiccate into scabs, and the inflammation of the skin subsides; but the fever continues unabated until the eleventh day, when it also gradually declines.

Variola presents certain varieties which are founded on the number and distribution of the pustules; when they

are dispersed and separate, the variety is termed *discrete;* when they are closely set together, they constitute the *coherent* variety; and where, from their great numbers, they blend with each other and form a compound pustule of considerable extent, the variety is termed *confluent.* As in rubeola and scarlatina, the fever of variola may be present without eruption, constituting a *variola sine variolis;* or the eruption may be arrested at any period of its course, in which case it is called *varicella,* or modified small-pox. At a time when the operation of inoculation was in use, variola admitted of division into *natural* small-pox and *inoculated* small-pox; while other terms have reference to its primary or secondary occurrence; namely, *primary* small-pox and *secondary* small-pox.

In a tabular form the varieties of small-pox may be arranged as follows :—

Variola discreta,
„ confluens,
„ sine variolis.

To which may be added the imperfect or aborted form of variola, namely, *varicella;* and the small-pox of the cow, or *vaccinia.*

Variola discreta is the mildest form of variety, nevertheless the premonitory symptoms may be very severe and out of all proportion to the eruption and secondary fever; and however discrete the eruption may be on the body in general, it is apt to assume the coherent or the confluent form on parts habitually exposed to the action of the air; for example, the face and the hands. The eruption is also later in appearance on the hands and face than elsewhere.

Variola confluens.—The confluent variety presents the most severe form of symptoms of the disease, both constitutional and local. There is more sickness, often amounting to vomiting; an extreme degree of prostration of power; a more parched state of the tongue and lips; a greater

amount of heat of skin; often diarrhœa, and in children convulsions. The remission of the fever is less marked during the eruptive period; and the secondary fever is delayed until the eleventh day. The eruption makes its appearance a day earlier than in the discrete form, the skin is more deeply suffused, and somewhat swollen, and the congestion of the mucous membrane more severe. And with the secondary fever there is often extreme prostration of nervous power and restlessness.

In confluent small-pox the crusts are produced on the face as early as the eighth or ninth day; they are brownish in colour and form a thick mask which remains attached to the skin for ten or twelve days; and the crusts on the body are not wholly detached until the twentieth or twenty-fifth day. When the crusts fall, the skin is left of a deep red colour, deeply pitted, and often ulcerated; the ulcerations when they heal leaving behind them irregular cicatrices.

Variola sine variolis was termed variolous fever by Sydenham, and represents the fever and mucous congestion of variola without the eruption. It is occasionally met with during the course of an epidemic of small-pox, but its occurrence is rare.

Inoculated variola.—Inoculation is no longer practised, but it may be interesting to note the course of the disease when excited artificially in the system by this operation. On the third day following the puncture by which the virus was introduced beneath the epidermis, the skin around the puncture is hard and dense to the touch; there is a circular blush of redness or areola, and a slight feeling of itching. On the fifth day a small papule is visible in the centre of the areola, and the areola is more decided; on the sixth day the papule has given place to a vesicle, and the vesicle is already assuming an umbilicated figure. On the seventh day the areola is tender and painful, it acquires a purplish tint, and the contents of the vesicle are becoming opaque and purulent; and on the tenth day the pustule is

hemispherical and mature. After the tenth day the areola fades, the pustule desiccates, and by the fifteenth day is converted into a thick and hard scab, which remains adherent for five or ten days longer, and then falls, leaving behind it a pit (foveola) and permanent cicatrix.

The variolous fever begins on the ninth day of inoculation, and is of a mild character. Sometimes it has been known to occur without the local phenomena above described, showing that the general constitutional disturbance may be set up directly and independently of the local process.

The eruption appears on the eleventh or twelfth day, sometimes as early as the seventh, and sometimes as late as the fourteenth. It is irregular in its distribution, and generally slight; and sometimes it is accompanied by the outbreak of patches of roseola.

Complications of variola. — Variola may be very mild, or it may be very severe; in its most moderate form it is sufficiently serious, therefore any complications superadded to its ordinary course must always be regarded with anxiety. The fever of *invasion* may be very intense; the rigor preceding it may be unusually prolonged; there may be acute pains in the head, in the chest, in the epigastrium or in the loins; there may be excessive delirium followed by coma, and the patient may die before the period of eruption has been reached. The *eruptive* stage may be accompanied with congestion of the brain, lungs, alimentary canal, or abdominal and pelvic viscera; and these congestions may prove fatal during this period. If the brain and spinal cord be attacked, there may be great restlessness, followed by twitching, convulsions, or coma. Congestion of the lungs may be manifested by bronchitis, pneumonia, and pleurisy; and of the alimentary canal by diarrhœa, dysentery, or hæmorrhage. These congestions naturally arrest the normal course of the eruption, the vesicles remain sta-

tionary, or collapse, or become distended with a sanguinolent serum.

The period of *suppuration*, always dangerous, may prove fatal in a few hours, in consequence of congestion of the brain, larynx, trachea, or lungs. There may be restlessness, with brown tongue, or dyspnœa; the skin may be wanting in its characteristic redness and tumefaction; and the pustules may become collapsed, or distended with sanguinolent fluid; or, worst of all, may lose their contents by absorption into the system. In cachectic states of the constitution passive hæmorrhages may occur at all the periods, associated with the petechiæ of purpura.

Even at the close of the disease, serious secondary affections may be set up, such as congestion of mucous membranes, hypertrophy of glands, caries of bones, inflammation of joints, congestion of the kidney and of the womb, and inflammation of the skin, sometimes assuming the form of erysipelas and furunculus, and sometimes of subcutaneous abscess or gangrene. With congestion of the kidney there may be hæmaturia or abscess; and with congestion of the uterus, menorrhagia, and during pregnancy, miscarriage.

Diagnosis.—In the earliest days of sickening with small-pox, variola is not distinguishable from rubeola and scarlatina; we may have some suspicion of the nature of the illness from a knowledge of an existing epidemic; our attention may be drawn to the lumbar pains and pains in the limbs; there may be vomiting, and in children convulsions, but all the three latter symptoms are met with in scarlatina, and we can only regard them as negative signs; we may note the absence of the coryza and suffusion of the eyes of rubeola, and the absence of the strongly-marked sore-throat of scarlatina. As soon as the eruption appears, the dispersed character of the puncta is suggestive of variola, the granular sensation communicated to the hand when passed over the surface, the redness less suffused and patchy than scarla-

tina, and more vivid than rubeola. The second day of the eruption decides the question without further doubt; the well-marked papulæ with vesicular heads are neither found in rubeola nor in scarlatina.

Cause.—The cause of variola, as of rubeola and scarlatina, is a special virus or poison, of unknown origin, but actively transmissible from person to person by infection, the most active period of infection being its pustular stage. It may occur at all periods of life, from the unborn child to the greatest age; it is uninfluenced by season or climate, but in an epidemic form is more frequent in the summer and autumn than in the colder seasons of the year. As a general rule, it makes its attack only once in a lifetime, but it is occasionally met with for a second or a third time, and has been noted even for a sixth time. A subsequent attack is commonly milder than the first, but even this observation is not without an occasional exception.

Prognosis.—Variola is never free from danger, even in its mildest form, and all we can feel is, that the discrete kind is less serious than the confluent. We have already pointed out the accidental complications that may show themselves at the different stages of the disease; and then we may have other accidents arising out of mismanagement or neglect, of an unhealthy constitution or personal dread of the disease. In a few words, variola demands all our vigilance and caution.

Treatment.—The regimen for variola is similar to that for the other zymotic fevers, rubeola and scarlatina. The patient should keep his bed; the bed-clothes should be light, but of sufficient warmth; the temperature and ventilation of the apartment should be properly regulated; the light of the sick chamber should be subdued; there should be no noise, or bustle, or talking with or near the patient; and his diet and medicines should be administered with regularity.

The diet may consist of milk, or broths, or farinaceous puddings; his drink with his meals, toast-water; and

between the meals, to allay the feverish demands of thirst, toast-water, barley-water, lemonade, tamarind-water, or a weak solution of chlorate of potash (ʒj ad Oj). A mild purgative may be given to secure a moderate daily action of the bowels, and febrifuge salines, such as the citrate of potash, or citrate or acetate of ammonia; or effervescent salines, may be administered at regular periods.

To relieve the heat and parched feeling of the skin, the body and limbs may be sponged with hot vinegar or a solution of ammonia, and the whole surface may be anointed with simple lard, gently but thoroughly rubbed into the skin. Inunction with lard we regard as a means of great relief at every stage of the disease; it reduces the fever of the skin, and through the skin relieves the general fever and nervous irritability.

Sedatives and narcotics are undesirable if they can be avoided, but are indicated in some instances by the presence of restlessness, sleeplessness, and pain. And if the powers of the system flag, we may have recourse to wine. In a word, the therapeutical treatment of variola is purely expectant, but demanding close observation and vigilance.

The ammonia treatment, so useful in rubeola and scarlatina, is equally applicable to variola; it may be commenced with the first symptoms of invasion, and continued until the close of the disease. Ammonia seems to have the power of controlling and modifying the zymotic poisons, of restraining their increase, and chastening their action upon the nervous system, in addition to its capabilities of keeping up the powers of the constitution.

This is the method of treatment of variola when it pursues its course with regularity, while any special indications must be met by special appliances. Thus, if the system appear to be suffering from the want of a more free or speedy outbreak of the eruption, we may have recourse to warm spongings with a pretty strong solution of ammonia, or to the ammonia bath. And if there be apparent congestion of the brain or

spinal cord, of the fauces or throat, of the lungs, of the stomach, or of the conjunctiva, these complications of the disease must be treated by special means adapted for their relief; for the most part by counter-irritation or the abstraction of a small quantity of blood by leeches.

Abstraction of blood is a last and worst resource; and although it may occasionally be useful and necessary, it should be avoided until the aid of counter-irritation is found to be useless. Sedatives are generally contra-indicated in the fever of invasion, but are sometimes of service during the period of the secondary fever; and the state of the bowels must be watched and regulated throughout the whole course of the disease. In cerebral congestion we shall find cold pillows useful, as well as counter-irritation behind the ears. In conjunctivitis frequent sponging with a spirit lotion gives great relief. Congestions of the fauces and throat must be treated by the local means advised for scarlatina. Sickness is often subdued by a poultice applied to the epigastrium, and the same remedy is best suited to relieve irritation and tenderness of the alimentary canal; for the latter purpose we may also have recourse to emollient injections. Hæmorrhages call for the administration of sulphuric acid with infusion of roses, and exhaustion and debility for wine and tonics.

As a local remedy there is none so well adapted to relieve heat and itching as inunction with lard, which may be used freely and at every period of the disorder, at the outset, when the eruptive congestion begins, and at the end, when the skin is undergoing exfoliation. The importance of this remedy is all the greater when it is borne in mind that the worst forms of deformity left upon the skin by small-pox are attributable to the efforts made by the patient to relieve itching; indeed, it is a necessary precaution in the case of children to keep the nails cut short and the hands muffled. On the face, the itching may be held in subjection by frequent sponging with a warm decoction of poppies, of marsh-mallow,

of barley, or a weak solution of common salt. This process is most grateful to the patient, particularly around the apertures of the face, and may be followed by the application of the linimentum calcis or of the benzoated ointment of oxide of zinc. The practice of puncturing the pustules and absorbing the pus with a piece of damp sponge is also useful as a means of preventing pitting.

Hebra has invented a perpetual hot-bath, in which he keeps his patient during the whole course of the disease, and he reports the most satisfactory results from his method.

Various suggestions have been made from time to time with the view to induce the arrest of the eruption at its earlier stages, and prevent the evils that result from suppuration. The remedies employed for this purpose have been termed *ectrotic;* they comprehend blisters, nitrate of silver solid and in solution, tincture of iodine, sulphur ointment, mercurial plaster, and mercurial ointment. Some of these are intended to alter the nature of the inflammation of the skin; others, for example, the mercurials, to neutralize the variolous poison, and to exclude light and air. These latter remedies have been found not only to check the progress of the eruption and mitigate the secondary fever, but also to subdue in the most perfect manner the itching and tension of the skin. Indeed, there can be no doubt of the value of some of these remedies, but it is not yet decided which is preferable for selection. Some years ago we anointed two patients with the strong mercurial ointment, with the effect of completely subjugating the eruption, but symptoms of salivation were induced. Dr. Hughes Bennett has recommended the combination of mercurial ointment with starch powder. When a mercurial plaster is made to cover a part of the skin, no pustules are produced beneath it. There seems to be little doubt that pustulation may be prevented, and with benefit to the patient; but the most suitable means of effecting that purpose have yet to be discovered.

VARICELLA.

Varicella, the diminutive of variola, is a mild form of eruptive fever, originating in the variolous poison; the fever is less in degree, and shorter in duration than variola, and the eruption represents one of the stages of the variolous eruption, short of perfect development. In other words, varicella, or varioloid, is a modified or aborted variola, an arrest of development of the variolous eruption, and in accordance with the stage at which the arrest of development may take place, is termed a *papular*, *vesicular*, or *pustular* varicella. Varicella is apt to occur in the course of an epidemic of variola, sometimes at the beginning, sometimes at the end; it may be met with in one member of a family, while the rest have ordinary variola; or it may occur as a secondary attack of the disease. It is less protective of the individual than variola, and somewhat less infectious; nevertheless, like its parent, it is actively contagious.

The fever of varicella is limited to the fever of invasion and fever of eruption of variola, and as the eruption never reaches the period of maturation of the pustule, the patient is saved from the violence of the secondary fever. Sometimes the constitutional symptoms are remarkable for their mildness, amounting to no more than trifling indisposition; at other times they may be as severe as small-pox itself. The symptoms are identical in their nature with variola, their leading features being lassitude, shivering, nausea, uneasiness at the epigastrium, often vomiting, pains in the head, the loins, and the limbs, quick pulse, and arrested secretions. These symptoms are continued for three or four days, are relieved by the outbreak of the eruption, and gradually subside when the eruption has reached its height, namely, on the fourth or fifth day. The fever of varicella, consequently, has a duration of seven to nine days. The eruption makes its appearance in the form of red puncta, granular

to the touch ; the puncta are followed by papulæ, and sometimes by vesicles and pustules, which run their course rapidly, reaching their height in from two to five days. As they advance in development, an areolar disk of redness surrounds each vesicle, and as the vesicles reach their mature form, the areola contracts into a narrow brownish band. After passing its height, the vesicle or pustule dries up into a small brownish scab, which falls in a few days, leaving a slight pit or depression of a deep red or purplish hue. When the pustules are scratched, they may leave behind them cicatrices as strongly marked as those of small-pox. As in the other zymotic fevers, there is more or less exfoliation of the epidermis at the decline of the disease.

The varieties of varicella are founded on the extent to which the eruption has proceeded before arrest of development has taken place ; it may stop at the papular stage, at the vesicular stage, or it may run on to the pustular stage ; and the pustules may be simply conical, or globular, or they may have the umbilicated form of the perfected vesicles and incipient pustules of variola. Moreover, as we have a variola sine variolis, there may also happen a varicella sine varicellis. In a tabular form, these varieties may be arranged as follows :—

Varicella papularis,
„ vesicularis,
„ pustulosa,
„ „ coniformis,
„ „ globularis,
„ „ umbilicata,
„ sine varicellis.

Varicella papularis is at the same time the most simple and the mildest form of the disease. It is a variola arrested at the papular stage, when the papulæ are dense and hard ; their hardness having suggested the term *horn-pock*, by which this form of varicella is popularly known, and also the less happy synonym, "*verrucosa.*" The constitutional symptoms

are of the slightest kind; the cutaneous congestion fades in the course of a few days, and the papulæ gradually subside.

Varicella vesicularis, the chicken-pox of popular language, the varicella lymphatica of writers, and the varicella lentiformis of Willan, is commonly a mild disorder, especially when the eruption is discrete; but where it is confluent, the fever may be very severe. The eruption commences in the form of red spots, with a central punctum, which throws up a vesicle on the second day; on the third day the vesicle attains its complete dimensions, and is globular in figure; while its fluid contents, limpid and transparent at first, become lactescent. On the fourth day the vesicle begins to collapse and shrivel, and on the fifth and sixth it desiccates into a thin brownish scab, which falls off on the eighth or ninth day, leaving a reddish stain, but without any depression. The eruption is not, however, simultaneous, like variola, but appears on successive days, and as each fresh crop of vesicles pursues a similar course, the eruption may be prolonged for ten or twelve days, or even for a longer period, and the eruption may be seen at the same moment in all its stages; namely, congestive, papular, vesicular, dessicative, and desquamating. The vesicles are surrounded by an areola of small extent; and the development and decline of the eruption is attended often with a troublesome itching.

In the midst of the vesicles of chicken-pox, it is common to find a number of papules which retain that character throughout; while on the face the vesicles are usually attended with more vascular congestion than elsewhere, and are apt to assume the pustular form.

Varicella pustulosa coniformis, the conical varioloid, and popularly the *swine-pox*, is the conical vesicle of variola, distended with pus, and then desiccating into a scab, and falling like the crust of ordinary variola. The eruption begins by red spots, in the centre of which the vesicle is developed; the vesicle is opaque from its first appearance, and purulent on the fourth or fifth day; on the sixth it be-

comes flaccid and wrinkled, and on the seventh dries up into a yellowish, or yellow-brown crust, of a conical figure, which falls off a few days later, leaving the base deeply stained with red, and slightly pitted. The areola is considerably inflamed on the third day; the congestion increases with the growth of the pustule, and the whole eruption is attended with considerable pruritus. The duration of the eruption is eight or ten days; but when the eruption is successive it may be retarded for a few days longer.

VARICELLA PUSTULOSA GLOBULARIS.—The globular varioloid, the "hives" of popular language, is distinguished by the globular form, and large size of the pustule, its dome somewhat exceeding the diameter of its base, and the latter being frequently oval in figure. The constitutional symptoms of varicella globularis are more severe than those of the preceding forms. The eruption pursues the usual course, beginning by spots and central papulæ, the papulæ becoming vesicular and opalescent on the second or third day, and reaching their full development on the sixth day, when they are completely pustular, and surrounded by an inflamed areola. On the seventh and eighth day they show signs of collapse, they become wrinkled, and desiccate; and on the ninth day are changed into brown scabs, which fall off during the three following days. The duration of the disease is ten or twelve days; but when successive crops of eruption appear, it may be prolonged for a few days further.

Varicella globularis, like the other varieties of varicella, is commonly associated with a sprinkling of the other forms, and on the face is apt to assume a more decided variolous character than elsewhere.

VARICELLA PUSTULOSA UMBILICATA is the most fully developed of the varicellæ; its fever of invasion more resembles that of ordinary variola, and the eruption makes its appearance on the third or fourth day of the fever. The spots, with a papular centre, resemble the other forms; on the second day the papulæ are vesicular at their points;

and by the fourth day are converted into large vesicles, flattened and indented on the summit, in a word *umbilicated.* During the fifth and sixth day the contents of the vesicles become purulent, and reach their highest point of development, namely, umbilicated pustules. As in variola, the process is more active on the face than elsewhere, and by the period of completion of pustulation on the general surface of the body the pustules on the face have commenced to desiccate. On the seventh day desiccation is universal, and on the eighth day the pustules are converted into brown crusts.

Desiccation of the pustule begins in the centre, and gradually spreads to the circumference; the crusts fall off on the tenth or twelfth day, and leave behind them slight depressions and a deep red or livid stain that lasts for several weeks, but there are no permanent pits or cicatrices excepting where the pustules have been disturbed in their course by scratching, and have fallen into a state of ulceration.

Like the other forms of varicella, the umbilicated vesicles of this eruption are more or less intermingled on various parts of the body, with the papulæ, the vesiculæ, and the pustulæ of the cognate varieties.

Varicella sine varicellis, or varicellar fever, is analagous in principle to rubeola sine rubeolis and scarlatina sine exanthemate; there is a moderate amount of fever, sometimes very slight, without any eruption of the skin. Cases of this kind are rare, but they are occasionally met with in the course of an epidemic of variola; the extreme mildness of the infection is sometimes due to vaccination, sometimes to a previous invasion of small-pox, and sometimes to insusceptibility on the part of the individual.

Diagnosis.—Varicella is distinguished from rubeola by the absence of coryza and cough; from scarlatina, by the absence of sore-throat, and from variola by the mildness of the constitutional symptoms and the subdued character of the eruption, which is shorter in its course, imperfect in its

development, has no secondary fever, and leaves behind it slighter pits and cicatrices.

Cause.—The cause of varicella is the variolous virus, the mitigation in its symptoms being chiefly due to the insusceptibility of the subject. In a family or in a community some of the members may have variola and some varicella, while a patient with varicella is capable of communicating variola to another. Varicella is more apt to recur than variola, and the constitution is less protected against the infection of small-pox.

Prognosis.—More favourable than variola; but fatal cases of varicella, particularly of the umbilicated pustular kind, are not without example.

Treatment.—The same as for variola. There should be no lack of care or watching from the supposed mildness of the nature of the disease, as at any moment complications may arise, and the disorder assume a serious character.

VACCINIA.

Vaccinia, or cow-pox, is the variola of the cow; it is a febrile eruption, occurring on the udder and teats of the animal, and spreading by infection to other members of the herd, and by contagion to man. Its identity with small-pox is shown by its occasional origin from contact with variolous patients or the fomites of variola, but the disease, when transmitted to man, is much milder than the human small-pox. Variola is also known to exist in the sheep, in whom the eruption is more general and more severe than in the cow.

In natural vaccinia occurring in the cow the udder and teats become hot and tender; the surface is uneven, and pimples rise up as big as the hemisphere of a pea. In three or four days the papulæ are as large as a horse-bean, and vesicular on the summit, and the vesicles gradually fill with an amber-coloured viscid fluid. The vesicles are conical,

oval, or globular at first, but subsequently umbilicated, and bluish and pearly in appearance, and desiccate from the centre to the border, forming hard, dark-brown crusts, which at their fall leave a deep indentation or pit, that remains ever after. Mr. Ceeley, of Aylesbury, whose name is identified with the history of variola vaccina, has counted as many as sixty pustules on a single udder.

The milkers of the diseased cows are apt to receive the disease by contact; the eruption occurs on the hands and on parts of the body which are touched by the hands; red spots are first seen; these spots become papulæ, which are hard, conical, deeply rooted, and of a dark crimson or purplish hue. The cuticle of the papulæ is raised by effusion into greyish or bluish vesicles; the vesicles become umbilicated, and enlarge by the circumference; the centre of the vesicle assumes a yellowish tint, and an inflamed areola spreads around its base. The inflammation accompanying the eruption is sometimes so severe as to cause sloughing, and excite irritative fever; sometimes it gives rise to subcutaneous abscess, and sometimes to inflammation of the lymphatic vessels and glands.

The easy transference of the virus of variola vaccina to man and the immunity from small-pox of those who had been the subject of the disease, suggested to Jenner the practice which, since his day, has been attended with such marvellous results, and which has converted variola into a mild and manageable, and almost harmless disease, namely, the artificial inoculation of the vaccine virus; in a word, vaccination.

The labours of medical men practising in counties wherein cows are assembled in great numbers, have given us the results of vaccinating children directly from the cow; they have furnished us with supplies of vaccine lymph from the original source, and they have taught us in what manner to test the lymph at present in use. It would appear that direct vaccination from the cow is too severe for ordinary

practice: that the lymph is too active until it has been passed through a succession of children, and has reached several removes from the original source; nevertheless, the practicability of a direct return to the cow, in case the lymph in use should have become weakened in its influence, has been fully proved. And on the other hand, it has been satisfactorily shown that the vaccine lymph, with proper care, will retain its complete power for a considerable number of years, and possibly for ever.

Lifting the veil from nature's operations, we are enabled to regard, firstly, variola, the destructive scourge of mankind, with the sole redeeming fact of its occurrence but once in a lifetime; and, secondly, variola vaccina, the small-pox of cattle, transmissible to man, mild in its operation, capable of taking the place of variola, and insuring to man all its immunity from a second attack of the disease. In other words, variola vaccina conveyed to man is as protective of the constitution against small-pox as is variola humana. And if it be not absolutely protective, the reason is simple, variola humana is not absolutely protective; but it may be fairly argued that when variola humana is absolutely protective, then also will variola vaccina be the same.

VACCINATION.

Vaccination is the remedy for one of the natural liabilities of mankind, namely, variola, and is therefore performed at an early age of infancy, the third to the seventh month. It may be practised at any period of life; and in the event of the existence of an epidemic of variola at an earlier age than that above stated; but to secure its success, it is important that the subject should be in health, and able to maintain a certain tranquillity for the ten or fourteen days during which the leaven is pervading the constitution. Hence, an eczema, as betokening an unhealthy condition of

the system, is a reason for deferring the operation; and in adults a certain preparation of the body, if not absolutely necessary, would at least be judicious.

When the important results of this operation, so trifling in itself, are duly considered, the necessity for caution cannot be too strongly urged. Vaccination is protective only when the operation has been properly performed, and when the constitutional and local effects of the inoculation have been normally and perfectly developed. And the importance of due care is further evinced by the fact that an imperfect vaccination is no more protective than its neglect altogether.

The operation of vaccination consists in bringing into contact with the derma a portion of lymph obtained from the vaccine vesicle when properly matured, namely, the vesicle of the eighth day; and this object is effected by pressing the point of a lancet obliquely through the epidermis until it reaches the surface of the papillary layer. If the operator have the opportunity of vaccinating from the ripe vesicle itself, he moistens the point of the lancet with the fresh lymph before introducing it into the epidermis; and if he vaccinate from lymph dried on a slip of glass, he breathes on the glass to moisten the lymph, and collects a little on the point of the lancet previously to inserting the instrument into the skin. The part of the body commonly selected for the operation is the outer side of the arm, a little below the joint of the shoulder; and it is customary to make three oblique punctures in the manner described. When the operator has made the three punctures, each with his medicated blade, he endeavours to insert as much of the lymph into the openings as possible; and if he have ivory points, he inserts an ivory point previously dipped in lymph into each of the openings. The ivory points are left in the wounds for a few seconds, and then withdrawn, and a slight oozing of blood is allowed to dry over the openings. The operation is now complete, and the operator is careful that the dress of the child is so arranged as not to rub against

the punctures. Sometimes the operation is performed on both arms to secure a greater number of chances of success; but this is not necessary, and it has the disadvantage of invaliding both sides of the infant, and interfering with its nursing; we should therefore advise that the procedure be confined to a single arm, the left being generally the most convenient.

As the purpose of vaccination is simply the allocation of the vaccine lymph upon the abraded skin, the abrasion may be effected in any manner the most convenient to the operator. The instrument may be a lancet, sharp or blunt, or a needle; the wound may be a puncture, a number of punctures, a number of scratches, or the raw surface of a blister. Indeed, if the lymph be fresh and other conditions favourable, virus may be absorbed through the epidermis without any abrasion at all.

On the *third* or *fourth* day following the operation, a blush is apparent at the seat of the puncture, and the latter is hard and slightly raised, so as to form a papule; on the *fifth*, *sixth*, and *seventh* day, the epidermis covering the papule is raised into a vesicle which is whitish, pearly, round or oval in figure, and depressed in the centre or umbilicated. The *eighth* day is the day of maturity of the vesicle; it is pearly in hue and umbilicated, and in structure is composed of an assemblage of minute cells (multilocular), each filled with transparent lymph. On the *ninth* day the umbilication is lost, the vesicle is evenly flattened or convex, and on this and the two following days its contents become purulent. On the *twelfth* and two succeeding days, the vesicle dries up into a crust; the desiccation begins in the centre and spreads to the circumference; and on the *fifteenth* and two following days the crust shrinks and forms a black scab, which separates gradually from the skin beneath, and falls off on the *seventeenth* day.

The EIGHTH-DAY VESICLE is the acme of vaccinia; it is the ripe fruit of the operation, it is the moment when the lymph is best suited for transmission, and it is the "pearl upon the rose" of Jenner, pearl-like in its hue, and seated

upon a ground of vivid redness, that forms an areola around its base. This areola, a few lines in breadth on the eighth day, spreads during the two following days to the dimensions of two inches or more; it is hard, tumid, painful, and sometimes sprinkled over with small vesicles; sometimes the inflammation attacks the axillary glands, and sometimes represents a kind of centre, from which roseolous blotches are thrown off upon the neighbouring part of the arm or trunk of the body (roseola vaccina).

The progress of the local inflammation around the base of the vesicle is accompanied with the change of the contents of the vesicle from lymph into pus: this is the pustular period of vaccinia; it is also the period when constitutional symptoms of irritative fever are apt to be developed, the fever corresponding with the secondary fever of variola, and comprising the ninth, tenth, and eleventh days. On the twelfth and two following days, the areola contracts in dimensions, and subsides in redness and swelling; and before the commencement of separation of the crust takes place, namely, on the fifteenth day, is usually gone.

The fall of the crust brings into view a depression of considerable depth, the floor of the depression being marked by small pits (foveolæ); this is the foveolated cicatrix characteristic of vaccinia, and remains permanent for the rest of life. Where, in consequence of mismanagement of the arm, or irritability of constitution of the child, ulceration has occurred during the inflammatory period of the vesicle, the cicatrix is irregular, and resembles that of an ordinary ulcer; but when the foveolated cicatrix does not exist, it may be inferred that vaccination has proved a failure.

The constitutional symptoms accompanying vaccination are commonly very slight: a little uneasiness, restlessness, or irritability of temper on the part of the child, sometimes associated with a suspension of the secretions, and dry and hot skin. These symptoms, when they exist, accompany

the pustular period of the vesicle, beginning on the ninth day, and lasting for two or three days.

As to the *cause*, *diagnosis*, and *prognosis* of vaccinia, no question in particular arises; but in reference to the *treatment* of the individual in connection with vaccination, a few words may be said. The functions of the body should be in a healthy state at the time of the operation, and all excitement avoided during the course of the process, which, it must be remembered, is pathological in its nature. Infants bear the operation and its consequences better than adults, because they are in a more healthy and a more natural condition; because, also, their diet is unexciting and unirritating. Adults, to obtain the same results as appertain to infants, should endeavour to imitate them in their healthy functional condition, their unexciting diet, and their repose and tranquillity. Where these objects have not been kept sufficiently in view, fatal results have sometimes accrued, and it has been wrongly argued that because vaccination is so slight in the case of the feeble infant, it must therefore be slight in the powerful frame of the strong man.

CHAPTER XVI.

SYPHILITIC AFFECTIONS.

SYPHILIS is a blood disease, originating in a special poison or virus engendered by sexual intercourse, and communicated by contact or contagion. Six or eight days intervene between the contact and the manifestation of morbid action in the poisoned part, and six or eight, or twelve weeks, between the commencement of the local disease and certain constitutional symptoms which are set up in the economy. The morbid process taking place in the part is termed the *primary* disease; the general, or constitutional symptoms are the *secondary*, or constitutional disease; while the appearance of the disease at a later period, namely, after several years, is termed *tertiary*.

Syphilis is, therefore, local and primary, or it is constitutional and secondary, or tertiary. Primary syphilis commonly shows itself as an ulcer; but secondary syphilis is a fever, in which the whole constitution takes part; and tertiary syphilis is reduced to a local character by the absence of constitutional symptoms.

Constitutional or secondary syphilis, or syphilitic fever, is manifested by weariness, depression of spirits, pains in the back and in the limbs, a quick pulse, white tongue, nausea, chilliness of surface, followed by profuse perspiration. These symptoms present much irregularity both in degree and in order of succession, and sometimes are absent; but they are quickly succeeded by another set of symptoms which are more pathognomonic; for example, rheumatic pains, neu-

ralgic pains, sore throat, eruption on the skin, and sometimes inflammation of the eyeball; the organs principally affected in syphilitic fever being the mucous membrane of the fauces, the skin, the nerves, the fibrous tissues, and the eyeball; and it is a matter of importance to distinguish these affections from a zymotic fever, such as scarlatina, rubeola, or variola; from common neuralgia, from rheumatic fever, and from ordinary iritis.

It is not impossible that all these symptoms may be present together, and developed at the same time; but more commonly the mucous and cutaneous surface, the nerves, the fibrous tissues, and the eyeball, suffer separately; and it is with the first of these that we are most interested in this place.

The eruption of syphilis, as it appears on the skin, in a word, the *syphiloderma*, may assume any one of the known pathological forms of cutaneous disease; it may be an erythema, a papule, a pustule, a vesicle, a tubercle, an ulcer, or a chronic inflammation attended with desquamation; and its characters may be expressed by the following terms:—

Syphiloderma erythematosum,
„ papulosum,
„ tuberculosum,
„ vesiculosum,
„ pustulosum,
„ ulcerosum,
„ squamosum.

Syphiloderma erythematosum is commonly the earliest of the cutaneous manifestations of syphilis, and it may show itself as a punctated and corymbous rash like rubeola, a form known as *roseola syphilitica* or syphiloderma roseolosum; as a *roseola annulata*, a rash composed of fine rings; as a *roseola maculosa*, in which the spots are circular, and of uniform redness; and as a *roseola diffusa*, in which the rash forms patches of irregular figure and size.

Syphiloderma papulosum, also named *lichen syphiliticus*,

is an eruption of papulæ which are sometimes corymbous, sometimes scattered more or less abundantly on the skin, and sometimes pustulous at the points. It is not unusual to find the corymbous or clustered arrangement on the limbs, while on the trunk the papulæ are pretty evenly aggregated or dispersed. Syphiloderma papulosum is occasionally the earliest eruption of syphilis, and especially if the fever be severe, or the constitution of the patient weakly. Sometimes it follows the erythematous form after the lapse of a few weeks; and the presence of pus in the points of the papules is indicative of irritability of constitution on the part of the patient, and a tendency to cachexia.

Syphiloderma tuberculosum embraces a much wider range of time than the two preceding varieties: it may occur early, and be a mere augmentation in development of the papulæ of the preceding variety, or it may be later in its appearance, and assume a chronic and more solid character, may spread by its circumference, and finally take on a process of ulceration. The earlier and the simpler forms follow the type of papulæ in their arrangement; they may be small and corymbous or separate and dispersed, or they may be large and isolated, like the spots of roseola maculosa, or they may be aggregated into patches of considerable extent, like those of alphos diffusus. Again, they may be smooth, or they may exfoliate on the surface, leaving a frill of cuticle around their base, or they may produce scaly coverings after the manner of the tubercles of alphos, and be liable to be mistaken for that eruption. Again, they may be stationary or they may enlarge by the circumference, sometimes without change in the centre, and sometimes with subsidence in the centre, like alphos circinatus. And finally, they may form scales, which fall off and are reproduced, or they may split across their border into fissures, and produce crusts by the desiccation of the secretions of the chaps, or they may take on the process of ulceration, and be converted into raised blotches of variable extent, and for the most part

circular, and partly tubercular and partly ulcerated. Sometimes the ulceration is the most prominent feature of these tubercular syphilodermata; and they are termed ulcera serpiginosa, from their creeping quality; and horse-shoe ulcers, from their frequent habit of healing on one side of the circle, while they creep onwards by the other. The ulceration of these tubercles is generally superficial, shearing, as it were, the papillary surface of the derma in its course, and forming narrow and linear ulcerations of a crescentic form, and sometimes of considerable length. It is to the circular centrifugal patches which desquamate on the surface and grow by the circumference while they subside in the centre, that the term lepra syphilitica, or psoriasis syphilitica, has been improperly applied.

Tubercula mucosa.—In parts of the skin kept moist by secretions, either accidentally, as in the axillæ and groins, or on and around the pudendum and anus, prominent growths are apt to form, which are termed *mucous tubercles.* The cuticle or epithelium covering them is white and corrugated; it is sometimes rubbed off, and excoriations are produced, and at other times the tubercles become ulcerated, and are very painful and troublesome. Occasionally, and under the same conditions, hypertrophy of the papillæ takes place, and the growths have the character of warts or vegetations.

Syphiloderma vesiculosum and syphiloderma pustulosum may be taken together, for the serum of the vesicle very speedily passes into the state of pus, and not unfrequently is purulent from the beginning, the vesicle, or rather bleb, and the pustule being the usual form of commencement of an ulcer to which the term *rupia* is commonly given.

Rupia begins like an ecthymatous pustule; it frequently has a hardened base, and is deep red or livid in colour; on its base a bleb containing a sanguinolent ichor or seropurulent fluid is raised, and the contents of the bleb dry up into a hard, black scab; sometimes the bleb breaks, and a crust is formed by the morbid secretions of its base; the

crust is black and rugged, and when removed, is found to conceal an unhealthy-looking livid ulcer, with thin and sometimes vertical edges, and an uneven base, the secretion from the surface of the ulcer being a sanguinolent ichor or a semi-purulent fluid. This is *rupia simplex*, and its crusts and ulcers may be more or less generally dispersed over the body and limbs; sometimes they occur on the head, and sometimes on the face, but are most frequently met with on the lower limbs.

Rupia has, besides, another mode of development; it begins as a large pustule, or pustular bleb, surrounded by a narrow, inflamed margin; in a short time the bleb, creeping onwards by its circumference, takes in the inflamed margin, and another inflamed margin is added outside; this latter is encroached upon in its turn, while another and another is formed, to meet with a similar fate; and so, by successive steps, the disease enlarges in extent, until it attains the diameter of half an inch to one or two inches. As the process is slow and regular, the pus contained within the bleb dries into a conical crust, and the cone gradually increases in breadth by its base, while its apex is more and more raised. This conical crust has been compared not inaptly to a limpit shell, and has been termed *rupia prominens;* while a broader but less elevated form of crust has in like manner been compared to the shell of an oyster.

When the crusts of rupia are removed, they are found to cover a deep ulcer, filled with a pale-coloured pus, and discharging a viscous and transparent secretion, often in considerable abundance; the edges of the ulcer are commonly thin and undermined, but sometimes thick and vertical, and occasionally have a phagedænic character, while the surface of the ulcer is uneven and smooth, or sprinkled over with unhealthy granulations.

Syphiloderma ulcerosum.—Suppuration may be present in syphiloderma, either as a formation of a pale-coloured pus in the summit of the pimples of syphiloderma papulo-

sum, or it may be associated with vesication in the various forms of rupia. The disposition to the formation of pus, in other words, the pyogenic tendency, is indicative of a debilitated and irritable or cachectic state of the constitution; and it is under the influence of this constitution that large and deep ulcerations occur in syphilis, and that still more serious and destructive form of ulceration which is termed phagedæna. Phagedæna in an ulcer is indicated by red, thick, and hard edges; by absence of secretion, which makes them look seared; by the frequent presence of black oozing points of blood upon their surface; by their vertical section, and by the absence of granulations. In the course of a few hours these edges disappear as if they had been dissolved, or, as the term implies, as if they had been eaten away.

But ulceration, besides being the result of a cachexia, may be determined by a local morbid action present in the diseased part. This morbid action is commonly associated with the tubercular form of syphilis, and then we perceive the curious phenomenon of a broad circular patch ulcerating along its growing edge, producing very little secretion, and the secretion so produced desiccating into a thin, irregular, and broken crust. Of this kind, also, as distinguished from the suppurating and the phagedænic ulcer, is the so-called horse-shoe ulcer, which creeps along the surface, eats off the upper surface of the derma in its course, is excessively painful, and heals upon one side while it moves onwards in a curve, like the long red streak of a line of soldiers, in its invasion of new ground.

Syphiloderma squamosum belongs to a late period of syphilis, commonly to the tertiary period, and is the form of eruption most frequently met with in the palm of the hands and sole of the feet, syphiloderma palmare et plantare. In the latter situations it is generally described under the incorrect name of psoriasis palmaris and psoriasis plantaris. The characters of syphiloderma palmare et plantare are, heat, redness, and thickening of the derma, accompanied with

cracking and exfoliation of the cuticle in ragged layers, and often with fissures of the skin, which sometimes bleed, and are frequently painful.

Syphiloderma palmare occasionally presents a tubercular and excentric character, creeping on by the circumference while it subsides in the centre, until it covers the entire palm, sometimes healing in the centre, and retaining an annular figure, and sometimes assuming the attributes of syphiloderma squamosum, bounded at the circumference by a prominent border.

As a rule, the energy of the syphilitic fever or constitutional symptoms is great in proportion to the brevity of the time that has elapsed since the occurrence of the primary disease. A first attack is more severe than the second; the second than the third; and so on, until, after a time, when the so-called tertiary period is established, the syphilitic fever is altogether lost. The same remark applies to the more prominent of the concomitant symptoms of constitutional syphilis; the sore-throat, the neuralgia, and the rheumatic pains, become less and less marked in the progress of time, until they also may cease. With an erythematous syphiloderma we may expect the fever to be more decided than with a papulous or a pustular syphiloderma, while in some of the later forms of tubercular syphiloderma and in squamous syphiloderma, there may be but a trifling degree of congestion of the fauces, or none at all, and no neuralgic or rheumatic pains. Nevertheless, we always inquire as to the presence or absence of these symptoms.

There are three other signs of constitutional syphilis that demand our notice, and are often found to be useful elements of diagnosis; namely, depression of spirits, a discoloured or dirty or muddy skin, a peculiarity of colour of the eruption, and a tendency to anæmia. The depression of spirits is occasioned by a lethargy of the whole nervous system, caused by the presence and accumulation of the poison in the blood. The same state of nervous system causes a suspension of

sanguification; the patient becomes anæmic, and at the same time the existing red particles of the blood are destroyed, and degenerate into pigment matter. To the accumulation of pigment in the blood and its elimination by the skin is to be referred the dirty yellow and greenish hue of the cutaneous surface, and the yellow-brown tints of the eruption, which have received the name of "copper-colour," as well as the deep red-brown and melasmic stains or maculæ, which are left upon the skin after the eruption has disappeared.

The poison of syphilis, therefore, like all other blood poisons, is a depressing agent, operating primarily upon the nervous system, secondly on the blood, and thirdly on the surface tissues; for example, the mucous membrane of the fauces, the skin, and, at a later period, the tongue and buccal mucous membrane. It is through the medium of the nerves, also, both trophic and sensitive, that the poison is enabled to set up morbid action in the eyeball, and in the periosteum and bones.

Syphiloderma infantile.—As in adults, syphilis in infants attacks by preference the surface tissues of the body, both mucous and cutaneous; sometimes the evidences of syphilis are apparent at the moment of birth; at other times they occur a few weeks after birth, while in most instances a syphilized ovum becomes an irritant to the womb of the mother, and is expelled at its embryo or fœtal period without reaching the full term. In syphilis infantilis occurring at birth, the cuticle is apt to separate from the cutis, as if decomposition had occurred; and if the child be living, the blood oozes freely from the denuded derma. The mucous membrane of the eyes, the nose, and the mouth, are in a similar state, desquamating and bleeding, and the tongue and buccal membrane are studded with aphthæ. Not unfrequently there is also soreness of the anus, as if the mucous membrane of the body were affected from end to end.

When the syphiloderma comes on after birth, the form which it assumes is that of erythema, in large blotches, and

of the brownish-red hue or copper-colour above described. The eyelids are clogged with mucus, the nostrils are loaded with secretion, the tongue and mouth are aphthous, the commissure of the lips cracked, and the fauces and trachea filled with a rattling phlegm.

Diagnosis.—The detection of the syphilodermata is founded on the appearance of the eruption and the concomitant constitutional symptoms. The redness of the eruption is peculiar, a brownish or yellowish red, a tint of colour different from ordinary inflammation, and commonly designated by the vague expression "copper-colour." The general complexion of the skin is dirty or muddy, and sometimes a yellowish or greenish brown. Then there is congestion of the fauces, sometimes ulceration, depression of spirits, profuse and fœtid sweats at night, an anæmic conjunctiva, and oftentimes pain, sometimes neuralgic and sometimes rheumatismal. The presence of all these signs and symptoms together would tend to decide the nature of the disease authoritatively; but they observe much irregularity, and some may be absent; hence the diagnosis of syphilitic eruptions offers considerable difficulty, and particularly, as we have already seen, from being identical in type with other eruptions of the skin.

Syphilitic roseola is very like common roseola; in both there is congestion of fauces and a muddy complexion of the skin, and both are attended with moderate febrile symptoms. The diagnosis, therefore, requires the corroboration to be derived from a knowledge of the pre-existence of syphilitic disease. This observation applies to the punctated and corymbous variety of the eruption, and also to the annulate kind. But the roseola maculosa presents the character of the syphilodermata in a more decided form; the redness is more characteristic, and it leaves behind it well-marked brown stains upon the skin.

Syphiloderma papulosum may be mistaken for eczema papulosum or lichen; but the papulæ are generally larger

than in the latter complaints; they are frequently corymbous, and there is an absence of pruritus. When to these differences are added the congested or ulcerated fauces and one or other of the constitutional symptoms of syphilis already indicated, there can no longer be any doubt. It may be well to note in this place that pruritus is a very important sign of difference between syphilitic and other eruptions, and as a general rule is absent in syphilis.

Syphiloderma tuberculosum may be a mere exaggeration in size of the papulæ of syphiloderma papulosum, in which case it is unlike every other eruption of the skin, or the tubercles may be large, and either prominent or flat, and suggest the idea of alphos. Indeed, as we have seen, one form of tuberculous syphilis has been termed lepra syphilitica and psoriasis syphilitica, a barbarous nomenclature, but sufficient to show the near approach in resemblance between syphilitic eruption and alphos. The form in question grows by the circumference, like alphos circinatus, while it subsides and perhaps heals in the centre, and the prominent circumferential ridge produces and casts off a succession of epidermic scales. When, however, ulceration manifests itself in the tubercles, all relation to alphos ceases, for the latter never ulcerates, although it may sometimes crack and bleed. The ulcerating forms of syphilitic tubercle, however, bear some resemblance to lupus, both the non-exedent and the exedent variety; and this resemblance has been indicated by the old term herpes exedens, applied indiscriminately to both. To distinguish between ulcerating tubercular syphilis and lupus we must bear in mind the special characters of the respective diseases.

Syphiloderma vesiculosum vel bullosum reminds us of pemphigus; but the bullæ are small, and their contents soon become purulent; their base commonly ulcerates, and the secretions dry up into the black, thick, and rugged crusts of rupia simplex, or the conical or oyster-shell-figured crusts of rupia prominens.

Syphiloderma pustulosum is altogether unlike impetigo, although it may be mistaken for ecthyma; but the hardened and inflamed base of ecthyma is absent, while the disposition to ulceration is greater.

Syphiloderma ulcerosum is either superficial or deep in the corrosion of the skin; both produce crusts from the desiccation of a morbid secretion; the former is extremely sensitive, but the latter, although more extensive, is less tender and painful, and is commonly associated with cachexia. As already observed, the superficially ulcerating forms of tubercular syphiloderma may be mistaken for lupus, and particularly that variety which has been named herpes serpiginosus; the common synonym of lupus being herpes exedens.

Squamous syphiloderma, as it occurs on the palms of the hands and soles of the feet, is commonly termed psoriasis palmaris et plantaris, and is confounded with true psoriasis, or eczema palmare. The diagnosis is often difficult, as syphiloderma palmare belongs to the tertiary period of syphilis, and all the other symptoms of syphilis may be absent. Our inquiry should rather take the direction of determining whether the disease may not be of eczematous origin, by a search for concurrent symptoms. In syphiloderma palmare we must remember the excentric growth of the eruption, and the frequent presence of a raised margin all around, or at some point of the circumference.

Syphiloderma infantile is so unlike all other affections to which the skin of infants is liable, that it can hardly be mistaken for anything else; and then the state of the mouth, the nose, the eyes, and the anus, is pathognomonic of infantile syphilis.

Cause.—The cause of syphiloderma is a specific poison, and its operation upon the skin probably associated with the function of elimination. Its admission into the system is effected by absorption through the tissues of the skin, and without the necessary presence of abrasion; and it may

exist in a state of solution in the mucous secretions as well as in the pus of an ulcer. Having entered the tissues for a certain depth, it may re-act on the surface, and produce the local lesion termed *primary* disease; or, like other poisons, it may pass directly into the blood, and saturate the entire system, producing a constitutional affection commonly termed *secondary* disease. And in the next place, it may abide in the system in a latent form for a number of years, and manifest its presence from time to time by partial eruptions, as we see illustrated in *tertiary* syphilis.

These are some of the phenomena of this remarkable poison; but it has many others. Like the vaccine poison, it is chastened and mitigated by its continuance in the human system, and year after year becomes weaker in its influence, until its power upon the individual is entirely lost. It may remain still communicable to another person; but in its modified state, produces only a modified disease: hence another source of variety of syphilodermata. They are not only modified in the individual by the long residence and naturalization of the virus, but they are modified also by their origin from a modified or secondary poison, in lieu of a primary poison.

Similar modifications also take place in the transmission of the poison, primary or secondary, from the father to the mother, and from the mother to the offspring; or, as is believed by some, from the father to the ovum, and from the ovum to the mother. In spite, however, of the modifications which take place in the power of the virus, the ovum is commonly blighted by its reception, and abortion ensues.

Prognosis.—The prognosis of syphilodermata is favourable; they are very amenable to treatment, and with the aid of judicious treatment always terminate satisfactorily. They are much more manageable than syphilis of the mucous membranes.

Treatment.—The treatment of syphiloderma at its early and febrile period must be antiphlogistic; the digestive

organs must be attended to, and the secretions set right; very soon the patient will bear the compound decoction of sarsaparilla, to which may be added two or three grains of the iodide of potash, three times a day, and a Plummer's pill at bedtime. This treatment supposes the patient to be under the necessity of keeping his bed; but if he be sufficiently well to be up, the sarsaparilla and iodide of potassium may be commenced at once, with the Plummer's pill, and after the third day, the pill may be taken night and morning.

In a less severe form of the disorder, it may be sufficient to order a dose of the compound decoction of sarsaparilla, with five grains of the iodide of potassium, twice in the day, and one grain of the protioduret of mercury, with three of extract of conium, at bedtime. At the end of a week the pill may be taken night and morning; and at the end of ten days the iodide of potassium should be increased to seven grains and a half the dose; while in another period of ten days, the dose of the iodide of potassium should be raised to ten grains.

In pursuing this treatment it is necessary to see that the iodide of potassium produce no unpleasant feelings in the head and nervous system of the patient; if such should occur, it must be stopped; and also that the mercury do not produce ptyalism. In the latter case the dose of the mercury must be reduced, so as to confine its action to a moderate tenderness of the gums. And in the case of being obliged to discontinue the iodide, its use may be resumed, if necessary, at the end of two or three weeks. Many years ago we pointed out the fact that iodide of potassium loses its beneficial influence on the system in syphilis if taken at the same dose for a longer period than ten days, and that, to secure its continued good effect, the dose should be augmented every ten days. When the dose becomes too large to be safe, and acts injuriously on the nervous system, it should be stopped at once, and after an interval or fallow of two or three

weeks, it may be resumed again as before. In this way we obtain all the curative effects of the iodide of potassium in a shorter period than by any other means. It may be mentioned, also, as being important, that the iodide always acts best when largely diluted.

In syphilis, as we have already shown, there exists a natural proneness to cachexia, to destruction of the red elements of the blood, and to general debility; hence it is very necessary, in treating these cases, to have recourse to a nutritive regimen and tonic remedies as soon as the febrile period is passed, and this necessity is all the greater in the suppurating and ulcerous forms. Where the indications of debility are not pressing, the usual diet may be pursued, but where there is exhaustion and debility we shall derive assistance from meat and porter, or wine. In the same cases we may have recourse to quinine and iron, or to the iodide of iron.

In tubercular syphilis, and particularly in the chronic tubercular and superficially ulcerating forms, and also in syphiloderma palmare et plantare, the bichloride of mercury in tincture of bark, or in combination with any other form of tonic, is a valuable remedy. The dose may rise from $\frac{1}{24}$ to $\frac{1}{8}$ of a grain, to be taken twice in the day, and may be increased weekly. As a variation of formula, we have also reaped considerable benefit from the use of the liquor hydriodatis hydrargyri et arsenici of Donovan.

In extreme and very obstinate cases of the ulcerating kind, which have resisted both mercury and iodine, we have still a good remedy left in Zittmann's decoction, which we often have recourse to with great success, and particularly in those most difficult of all cases, where the disease has got possession of the tongue and mucous membrane of the mouth. This decoction is administered in doses of two quarts a day, and the patient is kept the while in bed, his apartment having an uniform temperature of 70°, and his diet being

limited to the minimum quantity consistent with comfort. The treatment is kept up for a period of eight to twelve days, and at its termination we have seen the deepest and most threatening ulcers healed, and the most painful state of ulceration and mutilation of the tongue cured. We published the formula for Zittmann's decoction many years ago, after having convinced ourselves of its utility, and we repeat it here with the strongest recommendation in its favour.

DECOCTUM ZITTMANNI FORTIUS.

℞ Radicis sarsæ concisæ	℥xij.
Aquæ fontanæ	libris lxxii.

Digest for twenty-four hours; then add, tied up in a piece of linen:—

Sacchari albi	
Aluminis	āā ℥vj.
Calomelanos	℥iv.
Hydrargyri bisulphureti rubri (cinnabar) .	℥j.

Simmer down to twelve quarts; towards the close of the simmering add:—

Seminum anisi, contus:	
Seminum fœniculi, contus: . .	āā ℥ss.
Foliorum sennæ	℥iij.
Radicis glycyrrhizæ, concisæ . . .	℥iss.

Press and strain, and, after standing until cool, decant the clear liquid, and bottle twelve quarts.

DECOCTUM MITIUS.

To the dregs of the strong decoction add:—

Radicis sarsæ concisæ	℥vj.
Aquæ fontanæ	libris lxxii.

Simmer down to twelve quarts, and towards the close of the simmering add :—

Corticis fructûs citri, contusi
Cardamomum minorum, contus :
Radicis glycyrrhizæ, concisæ . . āā ʒiij.

Squeeze and strain, and, after standing until cool, decant the clear liquid, and bottle twelve quarts.

One bottle of the stronger decoction is to be taken *warm*, before twelve o'clock in the day; and one bottle of the weaker decoction *cold*, between twelve o'clock and bedtime. It has been suggested that the mercurial salts contained in the linen bag are useless, as undergoing no solution in the liquid; this may be the case, but we have fancied that the remedy answered better when prepared in accordance with the old formula than in a mutilated form. The treatment is commenced with an active purge of calomel (gr. iv) and colocynth (gr. viij); and if the action of the bowels be sluggish, the purgative should be repeated in the evening of the fourth day.

The *local* treatment of the syphilodermata is of inferior importance to its constitutional treatment. The eruption may be washed in tepid water with the juniper tar soap, and afterwards sponged with a lotion of the bichloride of mercury and bitter almonds. In chronic forms of tubercular syphilis inunction with mercurial ointments, and particularly with that of the ammonio-chloride, is useful, as also is the application of a mercurial plaster. The crusts of rupia should be softened by the water-dressing and removed, and the ulcers dressed with the ceratum resinæ diluted, or with the red precipitate ointment; and a similar treatment is applicable to the ulcers of all denominations; while, on the other hand, water-dressing, if long continued, or poultices, are generally injurious, by softening and weakening the tissues of the skin. Where there is much secretion from the ulcers,

the benzoated ointment of oxide of zinc, or the calamine ointment, may be found to be useful auxiliaries.

Syphiloderma squamosum should be well anointed with the ammonio-chloride of mercury ointment, which should be thoroughly rubbed into the skin, or with a mercurial glycerole containing four or five grains of the bichloride of mercury to the ounce. Mucous tubercles are best treated by washing with the juniper-tar soap twice or three times a day, and subsequent sponging with the bichloride lotion in bitter almonds, a strong liquor plumbi lotion, or the application of the benzoated ointment of oxide of zinc.

CHAPTER XVII.

LEPROUS AFFECTIONS.

LEPRA and ELEPHANTIASIS are terms applied to the same disease, the ancient leprosy, a disease which in former times spread over the entire world, which, arising in Egypt, travelled eastward and westward, and at the present moment is still active in the hot countries of the tropics, and in the cold regions of the north. It is interesting to us as having once had its abode in Great Britain, and as existing at the present time in some of our colonies, for example, the East and West Indies, the islands of the Indian Ocean, and notably in the Mauritius. From these sources the disease is occasionally imported to this country, and therefore demands our attention.

Lepra is a blood disease, and in this respect resembles the zymotic affections and syphilis, and it also resembles these diseases in some of its phenomena. The origin of the disease is doubtless an animal poison, but the source and nature of the poison are unknown; it is endemic but not contagious, and not hereditary. The virus of lepra operating on the system, gives rise to changes in the blood, which affect chiefly the surface tissues of the body, and the nervous system; in the former causing partial congestions with infiltration, resulting in the production of tubercles and ulcers, and in the latter loss of innervation and sensation.

These two modes of manifestation of the virus of lepra are the basis of a division of the disease into two varieties or kinds, namely, LEPRA TUBERCULOSA, and LEPRA

ANÆSTHETICA. The former of these, besides its specific tubercular character, always exhibits more or less deficiency of sensation; and the latter also evinces changes in the skin, but of an atrophic rather than of a tubercular nature.

LEPRA VEL ELEPHANTIASIS TUBERCULOSA.—The terms "tubercular" and "anæsthetic" draw our attention especially to the particular mode of manifestation of the disease; to the skin in the one case, to the nervous system in the other; but we must also remember that the disease before us is a blood disease, and as such is preceded and accompanied by certain constitutional symptoms. The invasion of lepra is always insidious; the constitutional symptoms at its beginning may be so slight as to escape attention altogether, and the first intimation of the existence of the disease may be the presence of erythematous spots upon the surface, or incipient tubercles, or a degree of numbness or insensibility of the skin. The disease does not invade at once, but by successive attacks, recurring at longer or shorter intervals, sometimes of a few weeks; each succeeding attack is accompanied by an augmentation of the cutaneous affection, and after a time the constitutional symptoms become palpable, and more or less severe.

The *constitutional symptoms* of lepra are like those of other blood poisons, but milder in their character; there is a sense of lassitude, with languor, depression of spirits, somnolency, heaviness of limbs, and disinclination for exercise and society; sometimes nausea, and frequently chills succeeded by febrile heat. These symptoms continue for a variable number of days, and subside with the development of the eruption upon the skin; to be repeated from time to time, at uncertain intervals, and for irregular periods.

The cutaneous affection is manifested by erythematous blotches of a circular figure; these are first apparent on the parts of the body usually exposed to the action of the atmosphere, as the face and hands, and are also met with on the feet, and afterwards creep upwards upon the limbs to the

trunk of the body, and extend also to the mucous membrane of the eyes, the nose, and the mouth. The blotches have a diameter of half an inch to two inches; they are dull red or purplish in hue, and fade towards the circumference. After some days the redness of the centre subsides and gives place to a brown stain, and the redness of the circumference creeps on for a short distance, and forms a ring around the brown centre; finally, the redness disappears entirely, and a permanent brown stain (morphæa nigra, melas) is left in its place. Sometimes on the disappearance of the redness a white stain is left behind (morphæa alba, leuce), and remains permanently. These stains are probably two of the three examples of spotted skin, or "Vitiligo," referred to by Celsus, namely, "Melas" and "Leuce;" both are permanent, but the white stain is more indelible than the black, and exhibits a greater degree of disorganization of the skin, being smooth and hard to the touch, and to a certain degree insensible. In the course of the changes here described the skin of the face is apt to acquire a red-brown tint over its whole surface, and the back of the hands and fingers to become brown, and the latter attenuated towards their extremity.

To the touch the centre of the erythematous blotch is hard and dense; and sometimes, instead of subsiding into a stain as already described, the epidermis peels off, and the corium is gradually converted into a tubercle by infiltration of the dermal tissues. The tubercle is at first of a dull red or purplish colour; then it becomes brown from melasmic discoloration; sometimes it has the transparency of brawn, and sometimes is whitish, from the deposition in its tissue of a white albuminous substance, which is peculiar to this disease.

The tubercles of lepra vary in size from that of a pea to a pigeon's egg; they remain stationary for several weeks or months, and then gradually subside and disappear, leaving behind them a depression which is brown or white

in colour, and resembles a cicatrix. At other times the tubercles soften and are converted into ulcers which give forth a white granular albuminous substance, and secrete a yellowish-white ichor. Sometimes the secretion encrusts upon the ulcer and gives it the appearance of rupia; at other times the ulcer is deep and excavated, bordered by thick callous and prominent edges, and surrounded by thickened, livid, and often painful skin, the secretion from the ulcers being of a yellowish-white colour and abundant in quantity. After a time the ulcer closes and heals, leaving behind it a hard, white, uneven, and often prominent cicatrix. As one ulcer heals, others are in progress, or fresh ones make their appearance in succession; the discharges seem to afford relief to the constitutional disease, and eventually the case may terminate in spontaneous cure, or it may terminate fatally, from exhaustion of power, or from the destructive effects of ulceration of the mucous membrane, or some organic disorder. In a case lately under our care, and which terminated fatally, both arms were stripped of their integument from the shoulders to the wrists by ulceration, and the patient died of exhaustion.

When the leprous inflammation attacks the mucous membrane, which it does at a later period of the disease, the conjunctivæ become suffused, swollen, and discoloured; the fauces are congested and covered with red circular spots, as is the whole of the buccal membrane; and there is evidence, in the hoarseness of voice, of a similar condition of the mucous lining of the larynx and bronchial tubes. Not unfrequently a tubercle on the cornea is followed by ulceration of the eyeball, the humours of the eye are lost, and its tissues collapse. In the nose also ulceration destroys the septum and the cartilaginous supports of the organ, and it becomes flattened and distorted. In the larynx similar changes take place, the spots assume a tuberculous character, the tubercles pass into a state of ulceration, and thus is one mode established by which leprosy proves fatal, namely, by

ulceration of the glottis and vocal cords, followed by asphyxia. In other cases, death is brought about by prolonged diarrhœa and dysentery, showing the extension of the disease to the alimentary canal; and the researches of Danielssen and Boeck have proved that scarcely any part of the mucous or serous membranes, or any organ of the body, can escape this destructive disease. They have traced it either in the form of accumulation of the peculiar white albuminous substance of lepra or ulceration, in the bronchial tubes, in the pleuræ, the lymphatic glands of the lungs, the mesenteric glands, the sub-peritoneal tissue, and peritoneum; in the liver, spleen, kidneys, bladder, uterus, ovaries, lymphatic glands, eyeball, and the coats of the blood-vessels and nerves. The only organs which seemed to escape were the substance of the lungs, pancreas, salivary glands, muscular tissue, deep cellular tissue, and bones.

Lepra vel elephantiasis anæsthetica is especially distinguished by defective innervation, by insensibility, lowered vitality, and atrophy. The constitutional symptoms are similar to those of lepra tuberculosa, but less strongly marked; there is the same languor, lassitude, dulness, somnolency, and depression of spirits, together with an instinctive desire for solitude. The skin is pale and shrunken, the conjunctiva anæmic, the countenance anxious or listless, and the muscles soft and dwindled.

The erythematous congestion of the skin is much slighter than in the tubercular form of the disease, and instead of terminating in brown stains is followed by white discoloration; and large solitary bullæ, varying in size from one to three inches, are produced upon an erythematous ground, and follow each other in succession. They rise suddenly with little or no pain, sometimes preceded by a slight rheumatic or neuralgic aching, and burst in a few hours, emitting an abundant semi-transparent, viscous, and greenish-yellow or milky discharge. The skin is slightly inflamed and ulcerated, and a crust is formed upon the denuded surface by

the desiccation of the morbid secretions; the crust falls from time to time, and is replaced by other crusts until the sore eventually heals, leaving a white and depressed cicatrix, insensible to the touch, and deprived of hair; or if the hair be reproduced, it is thin and white, and never recovers its original character. The glandular apparatus of the skin forming the cicatrix is also destroyed, and there is an absence on the spot of the usual moistening secretions. This process is continued for several years, and without other change; white spots are formed, bullæ are raised and discharge, the skin heals, and a permanent white and hairless cicatrix is left behind.

After awhile the erythematous congestion occupies patches of skin of greater extent than those already described, the redness is slight, and of a purplish or lilac tint, and there is a sensation of prickling in the part denoting the implication of a branch of a nerve. When the congestive action subsides, the prickling pain remains, and often continues for months, while the skin is left pale, thin, and insensible, dry and parchment-like in texture, sordid and discoloured in appearance.

When the face is the seat of this process, the countenance is pale, cadaverous, and listless; the skin is thrown into wrinkles or drawn tightly over the bones, making their prominences more distinct; the lower eyelid is everted and drawn down, the eyelashes are lost, the conjunctiva looks dry and dull, and the tears flow forth upon the cheeks. The nose is sharp and pinched, the teeth and gums are exposed by the drawing down of the lower lip, and the saliva trickles from the mouth.

On the limbs, also, the skin becomes thin and insensible, and the muscles fall into a state of atrophy; this change is remarkable in the hands; the fingers are taper, and the metacarpal bones prominent from atrophy of the interossei muscles, the wasting of the muscles between the thumb and forefinger being regarded as pathognomonic. Moreover, the

wasting of the muscles of the forearm causes distortion of the fingers; the first phalanges are drawn backwards upon the dorsum of the hand by the extensors, while the second and third phalanges are bent inwards by the flexors. The same changes take place in the feet; and the distortion, commencing at the extremities, extends by degrees to the wrists and ankles, the elbows and the knees. The joints are rendered unusually prominent, and a morbid action is set up in them, which has given origin to the term *lepra nodosa*, or *joint-evil*, applied to this disease as one of its synonyms.

These features constitute so many grades in the progress of the disease, and take time for their evolution; at first the erythematous congestion of the skin leaves no trace behind it, but discoloration and atrophy; in the next place ulceration occurs; the ulceration heals, and is succeeded by a cicatrix; thirdly, a permanent ulcer is developed in the hands, or more frequently in the feet, discharges copiously, and becomes a permanent issue to the disease; if it heal accidentally, it is replaced by another, and lasts so for years; and fourthly, a portion of a member, such as a finger, a hand, or a foot, swells and becomes painful; it gets purple in colour; the skin ulcerates; the ulcer discharges copiously, as these ulcers always do; disorganization of the deep tissues takes place, and an entire bone is loosened and expelled through the opening. These spontaneous amputations occur without pain, after the primary congestion, which is always painful, has subsided, and are repeated from time to time, until a whole limb may be severed at the knee, or an arm at the elbow, almost without the knowledge of the patient.

The copious ichorous and viscous discharges which take place from these leprous ulcers evidently act as a relief to the general system, and, if they be arrested, constitutional symptoms immediately arise, by which a new outlet is created. The ulcers are progressive in extent and in depth, sinking deeply among the muscles, dislocating and detaching

bones, laying bare the cavities of joints, and after all this havoc healing placidly, the cartilage of a joint possibly uniting with the skin, and shining through its attenuated substance. But these latter changes only take place when the sensibility of the limb is almost gone, and when a lighted taper may be held to the skin without exciting painful sensation.

The mucous membrane of the eyes, nose, and mouth, participates in the changes which take place in the skin; it is pale, anæmic, and dry; the eyes lose their faculty of vision, the nose its power of smell, and the palate taste; but ulceration rarely occurs, and even when it does, never reaches the height which is met with in lepra tuberculosa. The conjunctiva, from constant exposure to the air, becomes dry and crusted over with sordes; the mucous membrane of the nares is crusted in like manner, the septum is often perforated; the buccal membrane is dry and pale, and the exposed gums recede from the teeth.

Besides the more obvious distinctions between lepra tuberculosa and lepra anæsthetica, namely, the development of solid tubercles in the one and the absence of tubercles in the other; besides the inappreciable loss of substance in the one case, and the atrophy of the other; besides the lesser degree of derangement of innervation in the one, and the predominance of altered nervous function in the other; besides the chronic state of activity of the former, and the chronic passivity of the latter; besides all these, there is no distinction between the two varieties of lepra more remarkable than the difference of the pathological element, which is the cause of the solid tubercles and visceral deposits of the one, and of the profuse discharges of the other, the former being a substance white and opaque, and apparently albuminous in its nature, the latter, a transparent viscous fluid, resembling the fresh albumen of an egg, and also albuminous.

In lepra anæsthetica the constitutional febrile symptoms are the prelude to the formation and effusion of this trans-

parent viscous fluid. As soon as effusion is established, either into the tissues, causing œdema of the skin, or poured forth by the excretory orifices effected by ulceration, the constitutional symptoms are immediately relieved; and when, by any accident, the latter effusion is checked, œdema is substituted, the lymphatic glands become inflamed and enlarged, and the febrile symptoms are aggravated. And that the effusion is not limited to the cutaneous tissues is shown by the discovery, after death, of the accumulation of this same substance in the subserous tissue, of the lungs, liver, spleen, kidneys, and especially around the nervous system, in the membranes of the brain and spinal cord, in the neurilemmata of the nerves, and in the investing tissue of the sympathetic ganglia; and not only around these organs, but in their substance also.

It is to the morbid state of the nervous system here detailed that we must ascribe the loss of function of the nervous apparatus, the weakness of intelligence, the visitations of acute pains in the branches of nerves, while the peripheral extremities of those same nerves are senseless; the weakening of the function of digestion, and the coldness of surface, the temperature of the extremities being reduced to 90°, and sometimes as low as 68°, and the temperature in the axilla to 97°.

Further destructive effects of this terrible disease are discovered after death: the liver is enlarged and often in a state of fatty degeneration, the spleen is hypertrophied, the mesenteric glands are swollen, and the kidneys diseased. The latter days of the patient are often accompanied with diarrhœa and cramps, and he sinks from exhaustion, or falls into a state of coma from suspension of renal function.

Boeck and Danielssen have recorded, as the average of duration of lepra, nine years for the tubercular, and eighteen for the anæsthetic form. Two-thirds of a given number of tubercular patients had suffered from the disease from six to eleven years, while in the anæsthetic form it had lasted for

more than twenty years, and in one case for thirty-one years. The ages of the tubercular patients at the time of death was under thirty, one having reached the age of forty-five; while the ages of the anæsthetic patients ranged from thirty to sixty. It would therefore appear that while the tubercular variety of the disease is more common than the anæsthetic form, it is also the most speedily fatal.

Diagnosis.—Lepra must be regarded as a grave disease, of which only the extremes are represented by the terms tuberculosa and anæsthetica; in the tubercular form there is always insensibility, while in the anæsthetic form, the solid element of which the tubercles are composed, is replaced by a fluid element. Among the cases, ten or twelve in number, which have fallen under our observation in this country, we have had the opportunity of seeing the two varieties of the disease; but they have generally presented a mixed character, the tubercular form for the most part being that which chiefly predominated.

Lepra tuberculosa may be mistaken for syphiloderma, but lepra anæsthetica, with its complete insensibility, is so unlike every other disease, that an error of diagnosis would seem to be impossible. The resemblance of the tubercular form to the effects of syphilis is shown in its dull red erythematous maculæ, its tubercles, the discoloration of, and brown stains upon, the skin, the congestion of the fauces, the deep-seated neuralgic pains, and in the depressed mental state of the patient. The heavy, sombre, frowning countenance and dejected features of lepra, when once seen, are not easily forgotten; and the other symptoms resembling syphilis are distinguishable from the latter by their permanence. The deep brown and almost black stains (melas) of lepra are permanent, and the bronzing and sometimes bleaching of the fingers, together with the production of white stains (leuce), are characteristic of that disease.

If we assemble together the most prominent of the signs of lepra in its early stages, we shall find them to be as

follows :—insensibility of the skin; dull-red erythematous maculæ and blotches; suffused red-brown or copper-coloured discoloration of the face; brown or white discoloration of the fingers; brown and black blotches on the trunk and limbs; white blotches, attended with evidence of disorganization of the skin, such as thinness and obliteration of the papillæ and follicles; destruction of the hair; and, where the reproduction of hair has been attempted, its weakly bleached character; tubercles, especially on the forehead, along the eyebrows, on the cheeks, and upon the lobes of the ears; œdematous tubercles on the hands and feet; often bullæ, and subsequently ulcers; coldness of surface; deep-seated neuralgic pains, concurrently with insensibility of surface; depression of spirits; listlessness; dejection of countenance; anæmic state of the conjunctiva; atrophy of muscles, commencing in the hands, and remarkable in the metacarpal mass between the thumb and forefinger; attenuation of the fingers, and alopecia.

Alopecia has received so much attention, in association with lepra, as to have gained for the disease one of its synonyms, lepra alopeciata. The alopecia is most remarkable on the eyebrows, and sometimes extends to the entire scalp.

Cause.—The cause of lepra is a poison of endemic origin, but the nature of the poison is altogether unknown. The disease is hereditary, but not contagious. One remarkable case, lately under our observation, has led us to the belief that it may be communicated by inoculation. Europeans long resident in countries where it exists are liable to be attacked by the disease. An English military officer who had gone through the campaign of the mutiny of 1856, in India, came home invalided with lepra. Another example was that of a physician who had resided in India for forty years.

Prognosis.—The question of the curability of lepra is in suspense, and its decision must be influenced by a variety of considerations, such as the origin of the disease, whether hereditary or accidental, and the severity of the attack.

The prevailing opinion would seem to be that lepra is incurable, or in favourable cases remediable only in a limited degree.

Treatment.—In the presence of a vast evil we are apt to undervalue our natural resources, and look for help from special assistance. That error must not be committed in the case of lepra; all that our usual medical means can accomplish must be effected, and this done, we may turn our attention to specific remedies; to the best of our experience in lepra, a slender reed, but not without hope, if judiciously employed.

The early febrile symptoms of the disease, the weakened digestion, the deranged assimilation, and the cutaneous manifestation of congestion, are so many indications that may be combated by appropriate remedies. This is rational expectant medicine; but in the absence of special and empirical knowledge, we can have no better guide. The remedies suited to these indications are: small and repeated doses of sulphate of magnesia, with quinine and infusion of orange-peel, the chlorate of potash, and the salts of ammonia, bicarbonate, acetate, and hydrochlorate. Next will follow the nitro-muriatic acid with bitters, phosphoric acid with iron, and the citrate of iron and quinine. We have seen the best effects result from the use of these ordinary remedies, and we repose considerable faith in their efficacy.

We have striven to show that disease is debility, that cutaneous disease is specially indicative of debility; hence the necessity of a nutritious, and even generous diet. We endeavour to support the powers of the constitution by tonic remedies, and we must do the same by good, sound, and appropriate food.

All writers are agreed upon the necessity of supporting and stimulating the powers of the skin; the defective sensibility and nutrition of the skin, the coldness of surface, the tendency to deposition and infiltration into its tissues, the development of ulceration, are symptoms that all point

to this necessity. We should recommend for this purpose remedies which we have employed usefully ourselves: lotions of ammonia, the ammonia bath, and the hot-air bath, with subsequent inunction with lard, and a clothing of flannel.

Acting on the presumption of the existence of a blood poison that requires elimination, the compound decoction of sarsaparilla in doses of two quarts a day, and combined with small doses of the iodide or bromide of potassium, has been prescribed in some instances with good effect. But the iodide of potassium in larger doses, and with a specific object, has altogether failed, although it has been found of service in relieving the deep-seated neuralgic pains which accompany this disease.

The bichloride of mercury in small doses, and in conjunction with tincture of bark, has also proved serviceable as an alterative, but has equally failed in larger doses; and the conclusions of most authors are opposed to mercurial remedies.

Chalybeates are indicated by the obvious anæmic character of the disease, and may be used in small doses in any form, namely, ferrum reductum, the tincture of the sesquichloride, the sulphate, the acetate, the phosphate, the iodide, or the citrate alone, or, in combination with quinine, in the citras ferri et quinæ; but large doses are unsuitable; they arrest digestion, and create a feverish reaction that serves to augment the evil they are intended to alleviate.

As a tonic, as a nerve tonic, and especially as a stimulant of nutrition of the skin, arsenic has been used by various authorities; and we believe that we have seen considerable benefit result from its administration. Danielssen and Boeck have employed it in conjunction with the oleum morrhuæ, and we have given it in our ferro-arsenical mixture in doses of two minims of Fowler's solution three times a day, with meals; or in acid solution in the liquor arsenici chloridi in doses of four minims. By others it has been given in larger, in fact in too large doses, and has consequently pro-

duced disagreeable symptoms, and fallen into unmerited discredit. The triple solution of iodine, mercury, and arsenic of Donovan, has not been satisfactory in its operation or successful in its results.

Danielssen and Boeck have recommended small bleedings, cupping in the region of the spine, counter-irritation over the spinal cord, arsenic, tinctura lyttæ, and cod-liver oil; and they have recorded examples of apparent cure resulting from this treatment. But it must be remembered that lepra is subject to intermissions, and time and experience are consequently required to decide the question of cure. Tar has also been administered by these authors, but without any good result; and their opinion of antimony as a remedy for the disease is unfavourable.

Among simples, we have had recommended the decoction of dulcamara and mezereon, aconite and conium have also been tried; but our best resources under this head are two plants of Indian origin, which have the character of being specific remedies, namely, the asclepias gigantea, and hydrocotyle asiatica.

The asclepias gigantea, or rumex gigantea, in native language, the mudar or mudarrh, grows wild in every part of Hindostan. The portion of the plant employed for medicinal use is the bark of the root, which is dried and powdered, the dose of the powder being three to ten grains three times a day. It is also used in decoction, and if it give rise to pain in the stomach a few grains of soda or potash are added to the dose. The powder is also rubbed down to form an ointment for external use, or it may be dredged upon the ulcers, or mixed in a poultice. Another mode of employing it is to combine it with arsenic and black pepper, and divide the mass into pills. These, in fact, are the celebrated "Asiatic pills;" each pill contains one-fourteenth of a grain of arsenic, and the dose is one twice in the day.

The asclepias gigantea was called by its discoverer, Playfair, the *vegetable mercury;* it is, he says, the most powerful

alterative hitherto known, and an excellent deobstruent; in the *jugaru*, or leprosy of the joints, he never found it fail in healing the ulcers, and often succeeded in effecting a perfect cure of the disease. Its action, says Robinson, "is quick and decided, causing a sense of heat in the stomach, which rapidly pervades every part of the system, and produces a titillating feeling on the skin, from the renewed circulation through the minute vessels. It does not appear to be useful, or indeed advisable, where the affection is inflammatory, or the eruption pustular," on account of the great determination which it causes to the skin. "That this medicine is really the principal in the cure I have no doubt, for I scarcely ever succeeded by any means in curing or even checking the disease before I employed it, and have scarcely ever failed of doing so since." He further observes that bleeding, mercury, and antimony, used singly, are of no use; but that the last two combined with the root of the mudarrh have been found successful when aided by the application of topical stimulants. The formula which he proposes is composed of half a grain of calomel, three grains of antimonial powder, and from six to ten grains of the powder of the mudarrh, to be administered three times a day.

The *hydrocotyle asiatica* belongs to the same family as the common hydrocotyle of our stagnant ponds, and has the reputation of being specific in diseases of the skin, and useful in lepra. It appears to have a peculiar action on the capillaries of the mucous surfaces, and on the skin; it causes at first a sensation of heat in the stomach, and at the same time a prickling in the extremities, and then over the whole skin of the body, soon followed by an augmentation of appetite and transpiration, and a general improvement in the health. The properties of the plant seem to be due to a peculiar vegetable principle named *vellarine*, from *vellarai*, a native name of the hydrocotyle. Vellarine is a thick, pale yellow oil, having a bitter and penetrating taste which abides for some time on the tongue, and is most abundant in the

roots, wherein it exists in the proportion of somewhat more than one per cent. Besides the vellarine, there is a yellow oil, brown resin, green resin, saccharine extract, non-saccharine extract, and bitter extract; the latter, in the proportion of ten and a half per cent., is found only in the root. The fresh plant is slightly bitter and aromatic in taste.

The pharmaceutical preparations of the hydrocotyle are, a *powder* of the entire plant, of which the dose ranges from one to six grains daily; a *syrup*, prepared from the juice, useful for children, the dose ranging from two drachms to two ounces daily; a *tincture*, the daily dose ranging from ten to forty drops; an *infusion;* an *ointment* of the green plant; and *baths*, containing four pounds of the plant, either green or dried. Similar preparations are made from the root, and are much more active than those of the entire plant, the root containing, as already mentioned, the largest proportion of vellarine. Vellarine cannot, however, be employed separately, from its great hygrometric qualities and active tendency to decompose. Vellarine has also the property of volatilization at 212°, and the virtues of the plant are consequently destroyed by exposure to heat. For this reason, decoction and extract are inadmissible forms.

Dr. Marshall, of Bombay, found nitric acid a valuable and successful remedy, exhibited in the dose of one drachm daily, diluted with a pint or a pint and a half of water. Of two hundred patients treated on this plan, more than one-third were cured, and the greater number of the remainder much benefited.

The *local* treatment of the tubercles of lepra consists in the application of stimulants, with the double view of relieving the distended tissues, and causing absorption of the mass. The applications the best suited for this purpose are, a solution of potassa fusa, one part to two of water, the acid nitrate of mercury, and stimulating baths, such as the ammonia bath, a strongly alkaline bath, or baths of sulphuret of potash. Danielssen and Boeck recommend the touching

of ulcerations of the glottis with the potassa fusa diluted with honey.

The ulcers both of the tubercular and anæsthetic form may be dressed with the resin, or tar, or benzoated ointment of oxyde of zinc; or, if they discharge profusely, may be dusted with a powder consisting of equal parts of calamine and cinchona. If the mudarrh powder be procurable, to it may be given the preference.

MORPHŒA.

In the *course* of lepra, at its *close*, and often where no other symptom of the disease exists, the skin is visited by the appearance of black and white stains. These stains are termed morphœa nigra and morphœa alba, the morphœa nigra being the vitiligo melas of Celsus, the morphœa alba his vitiligo leuce. The skin is subject to black and white discolorations, which depend upon an excess or deficiency of pigment in the skin; but these discolorations differ from morphœa, in the absence of disorganization, and also in the absence of any alteration of sensibility of the skin. Morphœa nigra, or melas, evinces insensibility, and a certain degree of alteration of texture of the skin. Morphœa alba or leuce exhibits insensibility and disorganization of structure to a greater and more obvious extent. It is not our office at present to treat of the forms of morphœa which accompany lepra in the relation of symptoms of that disease, but to consider them as independent affections, or rather as affections of the nature of lepra occurring in persons in whom no other symptom of that disease is manifested.

Morphœa nigra, or vitiligo melas, we have never seen dissociated from lepra or from morphœa alba; it exhibits the mildest form of permanent change in the skin manifested by lepra. It occurs in spots and patches of rounded form, and varying in dimensions from one to several inches in diameter, and dispersed more or less numerously over the

body. Commonly the spots are preceded by an erythematous congestion of the skin, and the discoloration occupies the seat of the erythema at its decline; at other times a general coarseness and greasiness of the skin precedes the discoloration, and indicates a congestion of the glandular structure of the corium. The discoloration varies in tint, from a yellowish or reddish brown to a tint almost approaching to black; and the pigment would seem not to be limited to the rete mucosum and the epithelial lining of the follicles, but also to pervade the superficial stratum of the corium.

In the beginning the surface of the stain is smooth, but after a time there is dryness, roughness, and desquamation of the cuticle; the corium becomes thinner than natural, and less sensitive, and in certain situations, as on the fingers, acquires the lustre and tint of oxydised silver. The pathognomonic characters of morphœa nigra, therefore, are its association with lepra or morphœa alba, a degree of insensibility and thinning of the skin, together with a tendency to exfoliation and dryness of the cuticle.

Morphœa alba, or vitiligo leuce, is more characteristic than morphœa nigra, and exists not unfrequently as an independent disease. It occupies a small portion of the body, appearing in patches, is remarkable for its whiteness and insensibility, and for presenting the two special characters of lepra; namely, infiltration of the white opaque substance of lepra tuberculosa, and for the atrophy of lepra anæsthetica. Sometimes these two characters occur independently; at other times they are associated, or the former may give place to the latter. Hence the necessity of distinguishing two varieties of morphœa alba; namely, the infiltrated or lardaceous, or tuberous form, morphœa alba tuberosa, and the atrophic form, morphœa alba atrophica.

Morphœa alba tuberosa represents the tubercular form of lepra, and, from the resemblance of the affected skin to a tissue injected or infiltrated with white wax, or to the aspect of a bladder of lard, has received the additional name of

lardacea. It occurs in spots or patches, which vary in extent from half an inch to several inches in diameter; sometimes a number of small spots are developed in a cluster, but more frequently they are single and isolated. The surface of the spot is smooth, uniform with the rest of the skin, hard, apparently deprived of vessels, insensible, and hairless, and gives the idea of a portion of dead skin. The lines of motion and natural texture of the papillary structure are obliterated; a few straggling venules meander over its surface, and if any hairs remain, they are soft, and bleached, and downy. It is dry also, from the destruction of the glandular structure; and the cuticle, at first unchanged, becomes yellow and hard, and exfoliates by repeated desquamation.

The white patch of morphœa is often in the state now described when first observed; nevertheless, it begins as a lilac blush, and is sometimes accompanied with a sensation of tingling. After a time the spot becomes bleached in the centre, and encroaches more and more upon the lilac border, until at length it occupies the entire surface, and the lilac border disappears. The patch may remain in this state permanently, with no other change than dryness and a little discoloration of the cuticle, or the corium may become harder and whiter from the deposition of the semi-opaque white matter already described. Or, at a later period, the white deposit may be removed from the corium by absorption, the injured tissues may collapse and shrink, and the case may be converted into one of morphœa alba atrophica.

Morphœa alba atrophica corresponds in the general features of whiteness and insensibility, with morphœa tuberosa, its special characters being wasting or atrophy of the skin. It begins, as does the tuberous variety, with a lilac erythematous blush; it invades by degrees the spot occupied by the blush, it becomes dry on the surface from the destruction of the glandular apparatus of the skin; the cuticle desquamates, becomes hard and horny, and the corium

shrinks, often drawing towards it the surrounding integument, and producing distortion of countenance or figure, or contraction of a limb.

Morphœa atrophica sometimes evinces its force from the beginning, absorption and atrophy taking possession of the tissues already weakened by defective innervation; sometimes the tissues are disorganized not only by defective innervation, but also by the infiltration and deposit of the peculiar white substance of the tuberous form of the disease; and the absorption of this matter brings with it the collapse and atrophy of the skin.

When the pathological phenomena already described occur upon the scalp they are followed by destruction of the hair as well as by atrophy of the skin, and, as a consequence, a state of permanent baldness; this is *morphœa alopeciata.* Alopecia is a common symptom of lepra, and the modus operandi of the disease is sufficiently obvious.

Diagnosis.—Morphœa nigra, or melas, and morphœa alba, or leuce, are distinguished from melanoderma, or melasma, and leucoderma, or leucosma, by the presence of a morbid change in the skin, which results in its disorganization or atrophy. In melasma and leucosma the skin retains its natural structure, and commonly its softness and pliancy. In morphœa nigra, and especially in morphœa alba, the skin has evidently undergone a morbid alteration of structure; and in the latter, if not infiltrated with an opaque, white matter, possibly *amyloid* in its nature, is in a state of atrophy. Moreover, the alliance of morphœa with lepra is shown in its association with that disease in the character of a symptom.

Cause.—The cause of morphœa we believe to be identical with that of lepra, a blood poison, but the question is shrouded in obscurity.

Prognosis.—Morphœa is a chronic and obstinate complaint; it may be arrested in its progress by judicious treatment, but the atrophy of tissue admits of no restoration.

Treatment.—As morphœa is always associated with a general as well as a local debility, the general health must be regulated, and the vital power augmented by every means in our power: by nutritious and generous diet, by the observance of a proper hygienic regimen, and by tonic medicines, general and special; the special remedies being cod-liver oil, steel, arsenic, and iodine. Locally, the part should be stimulated by ablutions with the juniper-tar soap, by frictions with ioduretted glycerine, or by painting with the compound tincture of iodine. In some instances we have used the potash solution (one part of potassa fusa to seven of water), and the acetum cantharidis, with advantage.

CHAPTER XVIII.

AFFECTIONS OF THE PIGMENT SYSTEM.

THE PIGMENT SYSTEM of the skin has its seat in the rete mucosum. The disorders of this system, or the disorders of chromatogenesis, may therefore be regarded as diseases of the rete mucosum; and the rete mucosum being the formative layer of the epidermis, they may also be considered as diseases of the epidermis. The diseases treated of in previous chapters have been diseases of the derma, but this and the two following chapters will be devoted to the consideration of disorders affecting the epidermis, its mucous and its horny layer, the action of the disease taking place in the rete mucosum, and the horny epidermis suffering derangement of structure to a greater or less extent as a consequence.

The chromatogenous, or dyschromatous diseases, manifest their existence by a variation of colour of the skin; the more common change is that of a deepening in hue of the natural dark pigment of the rete mucosum, constituting melanopathia, melanoderma, or melasma; in the second place, the predominating morbid tint may be yellow, as in freckles, and the disorder one of xanthopathia; occasionally a blue pigment has been noted as being present in the skin, and the deranged function has been termed cyanopathia; and, lastly, there may be an achroma, or total absence of colour, and the skin may be perfectly white; this is the state which is termed leucopathia, leucoderma, or leucosma.

MELANOPATHIA.

Melanopathia or melasma cutis, commonly presents every shade of dark discolouration from mere duskiness of hue, *fuscedo cutis*, to the deepest tints of swarthiness or blackness, *nigredo vel nigrities cutis*. The lighter tints of black, mingled with the natural red and yellow of the skin, give rise to brown of various shades, and to the colour of medium depth of tint which has recently been distinguished as "bronzing" of the skin. Melanopathia may also be general in its distribution, *melasma universum*, or it may be partial, *melasma figuratum*.

Looking to the origin of melanoderma, we discover that the dyschroma may be physiological or it may be pathological, and in the latter case may be due to external causes, or causes affecting the cutaneous tissue alone, or to internal causes which operate upon the skin through the medium of the nervous system.

We are familiar with a physiological melasma in the swarthy coloration of the skin of the external organs of generation, and especially in the deep tint of brown or black that occupies the areola of the mamma in pregnancy. We have recorded an example of this discoloration, in which the blackness was not limited to the areola, but spread out upon the adjacent skin until it occupied the whole front of the trunk of the body from the clavicles to the middle of the thighs. Another example of physiological melasma is seen in the darkening of the skin of the eyelids which accompanies menstruation, and especially disorders of menstruation.

The local causes the most energetic in the production of pathological melasma are, heat, cold, and light, and especially the heat of the sun; while the latter and more familiar example has suggested the term *ephēlis*, επι, upon; ηλιος, the sun, by which one form of melasma figuratum has been known from the days of Hippocrates down to the present

time. The heat of the fire may produce a similar effect; so also may the reaction of heat after exposure to extreme cold, or the local irritation created by a blister applied to the skin.

The constitutional pathological causes that result in the production of melasma, both universum et figuratum, are disorders of the abdominal or pelvic organs, exciting irritation in the plexuses and ganglia of the organic nerves, and causing a pigmentary metamorphosis of the blood corpuscles of the venous system of the abdomen, and a reflex irritation in the skin.

Plenck distinguishes seven varieties of Melasma, under the name of Ephēlis; three belonging to the local group, namely, solaris, ignealis, and a vesicatorio; and four constitutional, namely, gravidarum, hepatica, dysmenorrhœalis, and hœmorrhoidalis. It will, however, be sufficient for every practical purpose, and at the same time more simple, to consider the varieties of melanopathia under two heads, namely, general melasma or melasma universum, and partial melasma or melasma figuratum.

Melasma universum is a general darkening of colour of the skin, spreading gradually over the whole or the greater part of the body, and with more or less uniformity of tint. We have recorded several such examples, and others are to be met with in the writings of many authors.

Addison was the first to point out the association of melanopathia with anæmia; and this association is the most important feature of the disease; simple alteration of colour might be regarded as an inconvenience rather than a disease; but when the change of colour is found to depend upon the destruction of the red particles of the blood, and the metamorphosis of their constituent substance into pigmentary matter, to be subsequently deposited in the rete mucosum by an eliminating effort, we are induced to look more seriously into the nature of the disease. Frerichs has seen the alteration which we are now describing in course of progress;

he has seen the blood particles of the splenic vein in process of being converted into pigmentary substance ; and he has traced the pigmentary substance subsequently, to the liver and to the brain. We have ourselves noted and described, as a symptom of this morbid change, a peculiar discoloration of the eyeball, which we termed melanæmic or melasmic eye ; this remarkable change in the eyeball being usually accompanied with a greater or less degree of melasma palpebrarum.

Melanopathia cutis may therefore be said to be the consequence of melanæmia, and melanæmia to be the result of a morbid change in the blood, occurring in the splenic vein, and probably to a greater or a less extent in all the veins of the portal system, and in a less degree in those of the general system. Now healthy sanguification and the healthy maintenance of the blood, are due to the nervous system, and in the present instance to that most important portion of the nervous system that has its centre in the solar plexus, and is surrounded by an intricate and extensive network of satellite plexuses and ganglia, the great centre of the organic system of nerves. Thus, in the example cited by Frerichs, of a destructive metamorphosis of the blood corpuscles of the veins of the spleen, we recognise a disordered innervation of the organ, of its vessels, and of their contents, and we trace this defective innervation to the source of the nervous power of the abdominal and pelvic viscera, namely, to the chain of nervous ganglia that has its head in the semilunar ganglia. If we discover disease, such as softening, or pressure, or disorganization in the course of this chain ; or in the *fons et origo*, the semilunar ganglion, we are warranted in the conclusion that this disease is the cause of the disordered innervation, that the destructive metamorphosis of the blood-vessels has followed in the suite of the nerve disease, that melanæmia succeeds, and, as a remoter consequence, an increased deposition of pigment in the cells of the rete mucosum of the skin.

But it is in nowise necessary that disorganization of nerve substance, or of a nerve centre, should be present to explain the phenomena before us; disordered innervation may be a consequence of reflex action, and morbid actions are known to operate with as much certainty through the agency of reflex transmission as they do by direct irritation. Thus, disease of any kind affecting an unimportant organ such as the capsula suprarenalis, will necessarily implicate a considerable plexus of organic nerves situated in its immediate neighbourhood; these nerves have their centre in the semilunar ganglion; the semilunar ganglion flashes the morbid irritation through the whole of the nerves which proceed from its mass; the splenic plexus is of the number, and the stimulus is at once given, which results in disordered splenic innervation, pigmentary hæmic metamorphosis, melanæmia, and melanopathia or melanoderma.

We select the above illustration because it is the one to which great interest has been given by the researches of Addison; but it would not be doing justice to the subject to confine it within so narrow a boundary. Disorder and disease of any one or of several together, of the abdominal or of the pelvic organs, may operate as a source of incident irritation, to be afterwards manifested as reflected irritation upon the spleen, the assimilative organs, the secreting organs, or the reproductive organs. All that series of reflex irritations with which we are so familiar in hysteria, may be set in operation as the agents of hæmic dyscrasis, of hæmic pigmentary metamorphosis, and of melanopathia. We have an example at hand in simple menstruation, and more strikingly in morbid menstruation; the nervous plexuses of the uterus communicate an incident irritation to the semilunar ganglia, the semilunar ganglia reflect that irritation on the organs of digestion; the results are, nausea, loss of appetite, weariness, depression of spirits, sympathetic pains, and melanic discoloration of the eyelids, the latter doubtless attributable to irritation of the splenic plexus of nerves. It will be seen,

therefore, that disease of any organ of the abdomen or pelvis has a power of exciting reflex irritation in the solar plexus equal to that of the capsulæ suprarenales, and that the reason why melanopathia and melanæmia have so frequently been found associated with disease of the latter organs is, in the first place, their position close to the semilunar ganglia, and surrounded by a network of organic nerves; and, secondly, their proneness to degeneration and decay, from having no longer a function to perform in the economy.

The constitutional symptoms associated with melanopathia, both general and partial, may be grouped under three principal heads, nutritive, gastric, and nervous. The symptoms evincing disordered nutrition are thinness and spareness of habit, softness of muscle, pale and discoloured skin. The symptoms denoting weakness of digestive organs are: loss of appetite, dyspepsia, weight at the epigastrium, flatulence, sometimes nausea and sickness, sometimes constipation; but, in general, there is little change in the action of the bowels. The symptoms showing feebleness of the nervous powers are: debility, languor, lassitude, listlessness, restlessness, depression of spirits, melancholy, nervous irritability, giddiness, dimness of vision, sometimes sleeplessness, headache, feeble action and palpitations of the heart, loss of energy and courage, and loss of memory; in one case there existed nervous monomania, in another there was "misery and despondency."

Melasma figuratum is a partial form of melanopathia, generally circumscribed, but not unfrequently associated with a diffused duskiness of the skin, *fuscedo cutis*, of considerable extent. It is to this form of melanopathia that the term *ephēlis* has been given; but as the word ephelis applies only to a cause, although to a cause that is far from uncommon; nevertheless, to one only of many causes, it is more consistent with a better knowledge of the nature of the disease, to adopt the term melasma or melanoderma in preference to ephelis.

Melasma figuratum is more frequently seen upon the face than elsewhere, but may be developed upon any part of the body. Its common seat is the forehead; next in frequency it is met with on the back of the hands, on the trunk of the body, and on the limbs. On the face and back of the hands it occupies a position which is most exposed to alternations of temperature, to the action of the sun and of fire, common causes of the disease. The face also is the seat of manifestation of many of the sympathies of the body, and the reflex phenomena of nervous irritation excited in the digestive and reproductive system are manifested, as in a mirror, on the forehead and upon the face. Melasma palpebrarum, or blepharal melasma, commonly presents itself in a diffused form, more highly concentrated near the edges of the lids than elsewhere, and commonly associated with anæmia of conjunctiva, and a dark liquid transparency of the globe of the eye, which we have designated by the name of melasma oculi. In countries where the charcoal brazier is much in use for warming the feet, a mottled form of melasma, ephelis ignealis, is met with on the inner side of the legs and thighs. A similar mottling is sometimes produced by varicose veins, and the lower extremities are especially liable to a yellow, black, or brown discoloration occurring in patches of variable extent, "maculæ livido-atræ tibias, potissimum senum, absque evidenti causa." Neither must we omit the melasmic blotches or maculæ which sometimes follow blisters, ulcers of the legs, and, in particular, syphilitic eruptions and ulcerations.

Looking to the constitutional origin of melasma, we see a reason why it should be more common in the female than in the male sex, and also why it should prove more obstinate in the former than in the latter. In twenty cases, seventeen were females, and only three males; the ages of these twenty ranged between twenty and forty-five, and the duration of the disease was: in ten, from two to five years, and in seven, from five to ten years.

Melasma frontis often assumes a peculiarity of figure which is not met with elsewhere; it is most concentrated along the line of the hair, and fades towards the centre, or it is absent in the centre, and assumes the shape of an arch; sometimes there is a central patch as well as the arched segment at either side; and occasionally the pigment takes the direction of the supraorbital nerves. A lady whom we know has a melasmic patch shaped like a horse-shoe on the middle of the forehead; the ends of the arch correspond with the inner extremity of the eyebrows, and two smaller curves proceed from these ends parallel with the eyebrows to about their middle.

Melasma is sometimes confined to a single region of the skin, as to the forehead, but is also very commonly dispersed over several regions at the same time; for example, in the twenty cases already mentioned, melasma frontis was present in thirteen of the number, but was alone in three only, the remaining ten cases presenting the following combinations: melasma diffusum, five; faciei, three; faciei et colli, one; and labii superioris, one. In one case the melasma occupied the cheek and the conjunctiva, and in another the dorsum of the hand and the popliteal region; while all presented examples of melasma oculi more or less perfectly defined. Moreover, two of the cases were associated with chloasma, a theme for future consideration.

Diagnosis.—The prominent feature of melanopathia, namely, colour, is so obvious, and the existence of anæmia so striking, that errors of diagnosis in well-marked examples of the disease are not likely to occur; in doubtful cases it may be remembered that the cuticle is commonly unchanged in melasma, but is more or less broken up and foliaceous in chloasma.

Cause.—Melanopathia obeys a double cause, namely, a *local cause*, such as the heat of the sun or fire, and the reaction of heat after exposure to cold; or local irritation, such as that occasioned by varicose veins; and a *constitu-*

tional cause, under the influence of which the red corpuscles of the blood are changed into pigment particles, creating melanæmia, and afterwards deposited by way of elimination in the cells of the rete mucosum.

Looking to the predisposing cause, nervous debility was present in thirteen of the twenty cases already referred to, nutritive debility in four, and assimilative debility in three; while the remote predisposing causes were as follows: pregnancy and uterine derangement, nine; nervous shock, six; and the following, one each: rapid growth, climate, rubeola, syphilis, and the heat of the sun after parturition. Melasma frontis succeeded pregnancy on two occasions in the same patient; and an additional predisposing cause seemed to contribute additional potency to the influence of the puerperal state in others; for example, the conjunction of rubeola and parturition, parturition and exposure to the sun, &c.

Prognosis.—Grave or unimportant according to the nature of the cause: if the irritation of the organic nerves be due to visceral disease, and proceed to an aggravated form of melanæmia and leucæmia, the case will prove fatal; if the disease be slight, or simply functional, there is hope of cure. And cure may especially be predicted where the nervous irritation originates in deranged uterine function or in hysteria.

Treatment.—The treatment of melanopathia must be governed by the nature of the cause of the disease: in a large proportion of cases it originates in nervous debility; in a small number, in nutritive and assimilative debility. Our treatment must have for its object to renovate strength and nervous power. Tonics of all kinds are indicated, especially quinine and iron, and phosphoric acid and iron. In nutritive debility we may conjoin cod-liver oil with these tonics; and in assimilative debility regulate digestion and secretion before aiming at bestowing power. In the generality of these cases, particularly where all ordinary indications have been accomplished by the usual means, we have found the ferro-arsenical mixture of great value, of a strength sufficient

to give two minims of Fowler's solution for the dose three times a day. With this treatment it is also necessary to combine moral medicine and a generous diet.

The local treatment requires moderate stimulation, by means of friction and ablution with the juniper-tar soap and the use of cold water. The bichloride of mercury lotion, one or two grains to the ounce, is frequently of great service; so also are frictions with the unguentum picis liquidæ and unguentum sulphuris, of each equal parts. We have in some instances employed with advantage a lotion of carbolic acid, a lotion of juniper tar with alcohol and soft soap, the unguentum creosoti, and the liquor carbonis detergens; and in obstinate cases have had recourse to the compound tincture of iodine pencilled on the surface, and a solution of potassa fusa, one part to eight of water.

XANTHOPATHIA.

Xanthopathia, or yellow discoloration of the skin, consists in the deposit in the cells of the rete mucosum, of a yellow colouring principle, and is the foundation of diffused pigmentary yellowness of the cutaneous surface, *flavedo cutis*, the yellow tints of cachexia cutis, the maculæ luteæ of newly-born infants, the circumscribed spots of lentigo, and, in combination with a small proportion of black, the yellow and reddish-brown of chloasma. Xanthopathia represents the yellow complexion of certain of the races of mankind, as does melanopathia that of the negro; and the xanthic element, like the melanic element, is doubtless derived from the colouring principle of the blood. We see this colouring principle developed in the varied tints of a bruise; and we have evidence of its presence in the economy in the coloration of the bile and of the urine. In a free state, namely, as a secretion of the sebiparous glands, we have another illustration of the xanthic colouring principle in stearrhœa flavescens; and in association also with the sebiparous appa-

ratus, a sub-cuticular discoloration of the eyelids, which we have designated a yellow hypertrophy of the epithelium.

The diseases which call for special consideration under the head of xanthopathia are: Lentigo and Chloasma.

LENTIGO.

Lentigo is the small lentil-shaped and lentil-coloured spot commonly met with on the face of children and young persons, in considerable numbers, and popularly termed *freckles* (lentigines). The spots are small, round, and yellow, of various size, rarely larger than the diameter of a split pea, and often considerably smaller. They are seated in the rete mucosum, and most abundantly distributed on parts of the body exposed to the influence of the light and heat of the sun; as the face, neck, and hands; and on the face they are most numerous around the eyelids, upon the forehead, and upon the cheeks.

The colour of the lenticular spots offers some variety, in accordance with the complexion of the individual: in red-haired persons they are saffron-coloured, and in children of different complexions may be traced a series of tints, running through every shade of yellow, to light brown, and even green. Plenck seems to have been most familiar with the browner kinds; for he says "lentigines sunt maculæ fuscæ, quæ, colore, figurâ et magnitudine, lentes referunt."

Lentigo is sometimes a congenital affection, appearing soon after birth, and continuing through life; more commonly, however, it prevails during the ten years from ten to twenty, and is more frequent in persons of light complexion and light hair, than in those possessing a darker skin. There is, however, a form of lentigo, which occurs upon the covered parts of the skin, *lentigines frigidæ*, or cold freckles, which are more common in adult life than in the young: these latter result from some derangement of the colouring principle of the skin, referrible to internal causes, and, except for their

size, belong to the consideration of melasma rather than of xanthopathia.

The exciting *cause* of lentigo is the operation of light and heat upon the skin, and in particular the sun's rays; but there doubtless exists a predisposing cause, in a weakness of structure of the skin, and a sensitiveness to irritant impressions. Cold freckles obey a constitutional cause, are met with in men as well as in women, and are favoured in their development by a weak state of the cutaneous tissues.

Treatment.—The intention of treatment in lentigo should be to promote a healthy tone and healthy nutrition of the skin; to this end the parts should be washed once or twice a day with some mildly stimulating soap, such as that of juniper tar, and cold water, and a moderately stimulant lotion subsequently applied, such as that of the bichloride of mercury in emulsion of bitter almonds (gr.j—ij ad ℥j); a similar solution in spirit, with elder or rose water; or a lotion of borax and rose-water.

CHLOASMA.

Chloasma is a discoloration of the skin of a light yellowish or greenish-brown tint, having its seat in the rete mucosum, occurring in small patches or blotches of considerable extent, distinctly circumscribed, and developed symmetrically on the trunk of the body, the neck, and occasionally on the limbs.

Chloasma is popularly named *liver-spot*, probably from its colour; but the colour is subject to certain variations, ranging from a reddish and yellowish tint to a light or even a dark brown or greenish hue; the latter tint having suggested very probably the term chloasma. These differences of tint correspond with the complexion of the patient, the colour being light in fair, and deep in dark persons. The patches of which it is composed are sometimes small and separate, like a cluster of islets or fleecy clouds, and at other times large and exten-

sive, and bounded by a map-like line. The common situation of the discoloration is the trunk of the body, beginning at the axillæ, and extending upwards upon the shoulders and neck and downwards upon the flanks, or beginning at the groins and extending upwards upon the abdomen and downwards for a short distance upon the thighs. The patches are developed in a similar manner upon the back, and are also met with in the flexures of the elbows and of the hams, and sometimes upon the inner side of the arms and legs.

Next to colour and figure the most striking character of chloasma is pruritus, and that also is very variable. We have met with persons who have complained of intense suffering from itching, and we have found it convenient to designate such cases by the name of *chloasma pruriginosum*, while in the greater number the pruritus was trifling, and in some there was no itching at all.

Another of the symptoms of chloasma is desquamation, and this forms no exception in variety to that which prevails in the other symptoms. Occasionally there has been no trace of desquamation or exfoliation, the predominating symptom being colour only; and such cases we have distinguished as *chloasma pigmentosum;* while in others the exfoliation and desquamation have been the first appearances to catch the eye, and we have felt the necessity of employing the term *chloasma furfuraceum.*

In brief, we have sometimes seen chloasma presenting the characters of an erythematous redness, and entitling itself to the denomination of *chloasma erythematosum*, while at other times its characters were best distinguished by the terms *pigmentosum*, *pruriginosum*, and *furfuraceum.* It is evident that chloasma is not a mere alteration of colour, like melasma and lentigo; but that it is associated very commonly with a degree of hyperæmia, and when this hyperæmia exists, there is more or less alteration of structure of the rete mucosum, and a furfuraceous breaking up and desquamation of the epidermis. It is this latter character that

has occasioned the confusion between pityriasis and chloasma, and has gained for the latter the synonym of pityriasis versicolor, while a chloasma with a deeper tint of pigmentation has been termed pityriasis nigra.

According to our view of the pathology of chloasma, the rete mucosum and epidermis present a degeneration of structure, in which the primary granules of the cells take on a morbid growth and possibly proliferation. This state of the cell-tissue we have termed *granular degeneration;* and when a portion of the morbid cell-tissue is placed in the field of the microscope, the granules may be seen in vast numbers. By others these granules are regarded as mucedinous plants, and have received the names of microsporon furfur and epidermophyton. The colour of chloasma is supposed to be due not to animal pigment, but to the coloration of the supposititious plant, and the desquamation to result from the breaking up of the horny tissue of the epidermis by the growth of the plant, and by the absorption of its moisture and that of the rete mucosum, for the purposes of nutrition of the parasite; in the language of this theory, the granules are sporules, and the sporules constitute the plant.

Chloasma prevails somewhat more frequently among males than among females; the ages most favourable for its development ranging from fifteen to thirty, and its duration from one to ten years. It is therefore a chronic complaint, and is apt to recur from time to time for a considerable period. We have found it to be sometimes associated with melasma figuratum and melasma oculi, and sometimes with eczema; while in one instance it accompanied melasma oculi and alopecia areata.

Diagnosis.—The pathognomonic characters of chloasma are its yellowish, brownish, and greenish patches, some small and others extensive; its principal seat, upon the trunk of the body and flexures of the joints; its symmetrical position, either excentric or concentric; pruritus, sometimes present and sometimes absent; and cuticular exfoliation, also absent

occasionally. Its colour distinguishes it from ordinary pityriasis, as it does also from melasma.

Cause.—The cause of chloasma is a debility of tissue, originating in nervous sympathy with the visceral organic system, and chiefly with the assimilative organs. In its pathological nature it is a hyperæmia accompanied with a morbid alteration of the epidermic cells, and an accumulation of pigment in the rete mucosum. But according to the supporters of the vegetable theory, it is a parasitic fungus, coming from without, growing in the rete mucosum at the expense of the juices of the cell-tissue, breaking up the horny epidermis into foliaceous and furfuraceous scales, and itself constituting the chief bulk of the desquamating substance, the colour of the chloasma being in fact the colour of the fungus. According to the same theory, chloasma is contagious, a belief which does not accord with experience.

The predisposing cause in thirty cases, was assimilative debility in twenty-five, nutritive debility in three, nervous debility in one only; and the remote predisposing causes were as follows: dyspepsia, alternation of seasons, variations of climate, pregnancy and menstrual disorder, general nervous weakness, eczematous diathesis, affliction, hæmorrhoids, rheumatism, leucorrhœa, sedentary pursuits, and alternation of cold and heat.

Prognosis.—Chloasma is harmless, although disagreeable to the patient from its appearance, and sometimes annoying from insupportable itching. It betrays no serious constitutional disturbance, is obstinate and recurrent, but eventually gets well.

Treatment.—The treatment of chloasma must be directed to the digestive and assimilative organs and secretions; and the best remedies for this purpose are, sulphate of magnesia with quinine or a bitter infusion; or, nitromuriatic acid with bitters. In obstinate cases it may be desirable to have recourse to the ferro-arsenical mixture.

The local treatment is one of stimulus of the skin, ablu-

tion with the juniper-tar soap, the cold tub in the morning, and spongings with the bichloride of mercury lotion, two grains to the ounce. In very obstinate cases the solution of the pentesulphide of lime will be found useful, or frictions with an ointment composed of equal parts of unguentum picis liquidæ, and unguentum sulphuris: these latter remedies should be used at night and washed off with soap in the morning, and they are at the same time the most effectual agents for the relief of pruritus. The unguentum creosoti is a useful application for the same purpose.

CYANOPATHIA.

Cyanopathia, or blue discoloration of the skin, is identical in its mode of manifestation with melanopathia and xanthopathia; but there is this difference between them, namely, that black and yellow are natural animal pigments, and are developed normally in the skin of the human family, their extremes being represented by the Negro and the Mongol; but blue pigment is an abnormal product resulting from morbid chemical combinations, and is consequently less frequent. Billard d'Angers has reported a case of cyanopathia of the forehead, face, front of the neck, chest, and abdomen, in a young girl; and he makes the curious observation that she blushed blue instead of red. Blue pigment has also been seen in the sebaceous secretion in stearrhœa cæruleum, in the perspiratory secretion, and also in the urine.

LEUCOPATHIA.

Leucopathia, leucoderma, vel leucosma cutis is an absence of pigment in the skin, an achromatous condition of the rete mucosum, and presents itself sometimes as a general affection, *leucosma universum*, and sometimes as a partial affection, *leucosma figuratum*.

Leucosma universum, or general achroma of the skin, is best illustrated in the albino, in whom there is a total absence

of pigment, not only in the skin, but also in the hair and in the choroid coat of the eyeball. The absence of colour is in this case physiological, and frequently hereditary; but as far as the individual is concerned, it is a state of disease, for it interferes with his comfort in a serious degree; he is almost blind by day, and only sees as well as other men in the gloom of the evening and at night.

Leucosma figuratum is the common form of pathological achroma, and occurs in patches, usually of a circular figure, and developed both upon the trunk of the body and upon the limbs. Leucosma is not uncommon in the black races, and in them is very possibly a simple arrest of pigment-formation, from disordered innervation and nutrition. But amongst those who possess normally a less degree of coloration the disorder of chromatogenesis is more general; for not only is there an absence of pigment on the parts affected with leucosma, but an excess of pigment on surrounding parts or diffused over the rest of the body. We have constantly before us examples of pure melasma, but never cases of pure leucosma, for leucosma is always associated, in a greater or less degree, with melasma.

If we may judge from so small a number as twelve cases, leucosma would seem to be more common in the male than in the female, and in the proportion of seven to five. Ten of these cases commenced between the ages of fifteen and forty, four out of the number occurring between fifteen and twenty, and four between twenty and thirty; one at the age of nine, and one at fifty-four. The duration of the disease at the time of treatment ranged between one year and five in six cases; between five years and ten, in three; and between ten years and twenty, in two; one having lasted twenty-seven years.

Ten of the twelve cases now referred to were examples of leucosma figuratum, associated with melasma diffusum; in one instance the leucosmic spots were small and elongated in form, resembling cicatrices, *leucosma maculosum;* and in

another the bleaching was confined to the edge of the upper eyelid of one side, and implicated six or eight of the cilia, which were also perfectly white.

When leucosma attacks the hairy parts of the body, it is not uncommon for the hairs growing upon the spot to be perfectly white. In one of the above cases a circular leucosmic spot occupied the summit of the forehead, and the hairs were completely bleached; and we have in remembrance a young lady who had one patch of leucosma on the side of the scalp, from which there issued a solitary lock of white hair. On the other hand, the surface of the skin may be bleached without implicating the growing hair.

Leucosma very commonly begins at the extremities of the body, as the fingers and toes; next in frequency it appears on the lips, the face, and neck; in the neighbourhood of the axillæ and groins; on the abdomen, and on the scrotum and penis. On the scrotum it sometimes assumes the form of longitudinal streaks. In India it has been observed to be more common on the sea-coast than elsewhere.

There is usually no symmetry of arrangement of the blotches; they are defined by a sharp edge, and the skin immediately around them presents a deep tinge of black, which subsides by degrees into the general duskiness of the melasmic skin. The leucosmic skin is in nowise altered in structure, but has the appearance of being less vascular and more delicate in texture than the adjacent parts, and is evidently less sensitive to the impression of stimulus.

Diagnosis.—The pathognomonic characters of leucosma are the whiteness or bleaching of the skin without alteration of structure; and, as we have seen, leucosma being in its essence a derangement of pigment-formation, it is commonly associated with melasma to a greater or less degree. The white patches of elephantiasis and morphæa alba always indicate a morbid alteration of structure combined with the loss of colour.

Cause.—Leucosma is a neurosis, and the result of weak-

ened innervation of the skin, the excitant being commonly referrible to the organs of assimilation or reproduction. Occasionally, and especially in India, it may depend upon the operation of a local irritant. Of the twelve cases mentioned above, eight were examples of nervous debility, three of assimilative debility, and one of nutritive debility. And the remote predisposing causes were as follows: menstrual irregularity, excess of mental labour, climate of India, gastric disorder, sudden alternation of heat and cold, typhus fever, and small-pox. In some instances several of these causes were successive.

Prognosis.—Where this affection is in the main physiological, as it is in India, it is comparatively unimportant, excepting as a deformity. An Indian gentleman suffering under this complaint remarked that, in his case, the colour had returned on most of the original patches, but that new spots were developed from time to time. Even in Europeans the disease is not inconsistent with a moderate state of health of the body, and it only becomes serious from its neurotic sympathies.

Treatment.—Regulate digestion and secretion, give vigour to assimilation and tone to innervation, and at the same time apply a healthy stimulus to the skin. These are the general indications for the treatment of leucosma, as they are those for the management of the dyschromata in general.

To this end a regular and nutritious diet and healthful hygienic conditions materially conduce. Next, tonics, digestive tonics, blood tonics, nerve tonics, and, at the proper time and in proper doses, the ferro-arsenical mixture. The local treatment should consist of cold ablutions daily, the use of soap and friction to the skin, and stimulant applications to the affected part; such as, lotions of the bichloride of mercury, acetum lyttæ, compound tincture of iodine, sulphurous acid, and frictions with a compound ointment of sulphur and tar.

CHAPTER XIX.

PHYTODERMIC AFFECTIONS.

THE PHYTODERMIC or DERMOPHYTIC AFFECTIONS are diseases involving the structure of the rete mucosum and epidermis, and they present the character in common of developing a morbid tissue resembling that of a fungus plant or mucedo; hence these diseases have also received the name of NOSOPHYTA. The seat of the morbid tissue is the rete mucosum and hair; and in the rete mucosum it gradually rises to the surface by the detrition of the horny epidermis and by the exfoliation of the lining membrane of the follicles, until it is found to pervade the whole thickness of the epidermic structure.

The morbid or phytiform tissue is composed of globular nucleated granules, and these granules have the properties of proliferation and growth; by *proliferation* they increase in number without change of figure; by *growth* they become elongated into diaphragmated cylindrical shafts, and have the power of throwing off shoots from point to point, and assuming a branched or phytiform character; the medium of growth being the division of their nuclei. In botanical language these elements are termed: the nucleated granules, *sporules*, or seeds; the cylindrical and ramified shafts, *mycelium;* and as they resemble in every respect mucedinous fungi, they have been classed with those vegetables, under the names of Microsporon, Trichophyton, and Achorion. The microsporon and the trichophyton are composed almost wholly of sporules, with little or no mycelium; the achorion

is more complicated in structure, and consists of sporules or seeds, sporidia or seed-vessels, and mycelium. The difference between them seems to be one of nourishment: on the trunk of the body, where the follicles are small and only scantily supplied with capillaries, the microsporon is found; in the substance of the hair, also poor in nutritive fluids, the sporular trichophyton exists; but in the highly vascular hair-follicles the achorion finds the supply of nutrition suitable for its greater growth and development.

And what is this phytiform growth? Is it, as we maintain, an alteration of structure of the elementary components or granules of the cell-tissue of the rete mucosum? or is it an independent organism—a plant originating from a sporule or seed, conveyed accidentally to the skin, fixing itself in the skin, drawing nourishment from the skin, and growing in the soft cell-tissue of the rete mucosum, at the expense of the nutritive fluids of the skin, just as a lichen or a fern may grow upon the bark of a tree? Is it a parasite figuratively, as a blood-corpuscle or an epithelial cell may be a parasite, or is it a parasite actually? The latter is the theory maintained by many, and that theory is embodied in the expression, "parasitic diseases of the skin;" and that no mistake should arise, the parasitic plants are arranged by the side of the parasitic animals, the acarus scabiei and entozoon folliculorum.

The question is important, not so much in a practical point of view as in its relation to physiology. We maintain that we have seen the cells of the rete mucosum passing through those stages of growth which have converted their nuclei into granules, the so-called sporules; we maintain that the granular condition is the normal fœtal structure of the young epidermal cell, and that the morbid condition in question is an arrest of development of those cells at their fœtal stage, and the cause of their consequent modification of destiny, no longer to rise through those higher stages of animalization which culminate in the production of horn, but doomed in

their crude condition to the lowest function which belongs to immature organic matter, namely, proliferation. We can find no better word to express this degradation of structure than the term "granular degeneration."

To return, however, to the diseases before us, this phytiform tissue is an undoubted fact; its seat is also admitted; we have now only to say that it constitutes the pathological element of four separate diseases, as follows :—

Favus,	Sycosis,
Trichosis,	Chloasma.

In favus, the phytiform tissue was first observed, and the fungus is termed achorion Shœnleinii;* in trichosis and sycosis the sporular form of the fungus is met with under the name of trichophyton tonsurans; while in chloasma the fungus is also sporular, and is named from that circumstance, and from giving rise to a furfuraceous condition of the epidermis, microsporon furfur, and epidermophyton. These diseases, therefore, having a common pathological element, admit of being grouped together, and constitute a veritable epiderminosis.

Besides their common pathological element, the epiderminotic affections have several other points of resemblance; namely, their seat in and around the follicles of the skin, their destruction of the epidermis and hair, and their epidemic and possibly their contagious nature. If the phytiform substance be a real plant, and the granules real sporules, the contagion of these diseases should be positive and unques-

* Achor is a name given to a small follicular pustule of the scalp. The term is at present disused, in consequence of the difficulty of identifying with exactness the pustule intended to be defined. The Greek word $\alpha\chi\omega\rho$ signifies scurf or dandruff, $\alpha\chi\upsilon\rho\sigma\nu$ meaning "chaff." The term would therefore seem to have been applied rather to the thin scale left by a pustule than to the pustule itself. Achorion is a derivative of achor, and Schœnlein the name of one of the early observers of the dermophyta, which were discovered by Remak, in 1836.

tionable, which we cannot admit to be the case: and we are not helped in this matter by experiment; for the proliferous granules of aborted cells would retain their proliferous properties under favourable conditions, and might continue the form of growth which belonged to them, without giving sanction to the belief that that was their normal mode of transmission.

A strong objection to the mode of contagion admitted by the phytopathologists is involved in the fact that the disease begins, not upon, but under, the horny epidermis; and to reach the bed in which it grows, the sporule must have the power of perforating the horny cuticle, a process which we believe ourselves warranted in declaring a physiological impossibility, while another argument against the contagion theory is the symmetry of development of one of the diseases, namely, chloasma. Contagion by seed implies the growth of the plant wherever the seed falls; and in the case of the scalp and face, there is nothing opposed to this view in the mode of distribution of the morbid patches; but the symmetrical disposition of the patches of chloasma obeys another and a vital law, one appertaining to the individual, and indicative of an action of the nervous system: it is, in fact, a neurosis.

Favus and sycosis being diseases of the hair-follicles chiefly, and trichosis being a disease of the hair chiefly, their description will be found in the chapter devoted to the hair and hair-follicles. Chloasma is remarkable, principally, for the altered pigmentation by which it is accompanied, and is therefore treated of in the chapter on chromatogenous affections, although as an epiderminosis it also occupies the follicles of the skin, and the interfollicular rete mucosum.

CHAPTER XX.

AFFECTIONS OF THE NAILS.

THE NAILS are a part of the epidermis, and their disorders are referrible to a want of harmony with adjacent parts, to errors of development, growth, colour, or texture, and to inflammation of their producing organ, the matrix, and adjoining corium.

The nail is developed originally under the cuticle, and the root of the nail maintains that position for the rest of life; the edge of cuticle which borders the posterior wall is adherent to the surface of the nail, and is apt to grow forward with the nail to an inconvenient extent, sometimes covering it almost completely; the nail is as it were coated with a thin transparent layer, that may be compared to the wing of a bat; hence the term *pterygium unguis.*

Without attaining the extreme degree of growth implied by the term pterygium unguis, the cuticle of the posterior wall not unfrequently advances for a short distance on the nail, and then breaks away from the surface and curls back, sometimes as a whole, but more commonly in divided portions or narrow slips. These little torn shreds, which are as hard as horn when dry, are apt to catch against the clothing and give rise to laceration of the corium, and a painful state of the posterior wall of the nail; hence they have been termed *agnails.* And occasionally the posterior wall of the nail is swollen and everted, and more or less inflamed; a morbid condition which has received the name of *ficus unguis.*

In reference to development, the nail has sometimes been

found wanting, and at other times its adhesion to the matrix is so infirm that it falls off from time to time, and is replaced by a new nail, which in the mean time has been growing beneath it; or the matrix may remain bald for a considerable time, *alopecia ungualis*. The fall of the nail has been termed *lapsus unguis*, and its loss may be the result of an aberration of physiological laws, or a morbid state of the matrix, the consequence of constitutional disease, such as scarlatina, syphilis; or local injury, as a bruise, burn, frost-bite, &c.

Deformitas unguium, or faulty shape of the nails, results from defective nutrition and innervation; and the nail under these circumstances may be too long or too short, too narrow or too broad, and unnaturally raised or depressed either longitudinally or transversely. An abnormally curved or arched state of the nail is termed *arctura unguis*, while the arched and hooked nails so frequently seen in conjunction with the clubbed fingers of scrofulous and consumptive persons, are called *ungues adunci*. We have lately seen a shovel-shaped nail, the consequence of a prolonged attack of eczema; the nail produced during the continuance of the disease was little more than half the breadth of the original nail, and having grown nearly its full length, the older portion spread out at the extremity, like the fan of a shovel.

Supernumerary nails are occasionally met with in the form of a double nail, resulting from a tendency to bifid division of the ungual phalanx. The end of the finger is broader than natural, and the two nails, or rather the two wings of the double nail, become blended along the middle line.

Occasionally, from some accident of development, the nail occupies an *abnormal situation*, such as the extremity of an amputated finger, or the stump of an arm.

Abnormal growth of the nails is sometimes evinced by extreme tardiness, at other times by rapidity, and sometimes by abundance or excess of growth. We have seen instances in which the elongation of the nail has been so torpid as to suggest the idea of an arrest of growth, while in others it

has been unusually rapid. The nails often acquire an enormous size in the Barbadoes leg; and the extraordinary productions of this nature met with in bed-ridden persons are familiar to most of us. We have several such nails measuring two and three inches in length; and cases are recorded in which the nail of the great toe has reached five inches. One author states that he found in his patient a horn instead of a nail upon each great toe; and another author has devoted an essay to "unguibus monstrosis."

DISCOLORATION OF THE NAILS is sometimes seen as small round spots, or stripes of an opaque whiteness, *selene unguis*, also called *flores unguium* and *mendacia;* sometimes as dark spots resulting from ecchymosis, the consequence of a bruise, and sometimes as transparent horny-looking spots, evincing the development of a tubercle of alphos in the matrix of the nail.

DEGENERATIO UNGUIUM.—A more important alteration of the structure of the nail is known by the name of *defœdatio et scabrities unguium.* The nails are discoloured and distorted in appearance, they acquire a dirty horn-colour, and separate from the matrix, the space beneath them being filled with a dry, horny, broken, and sometimes pulverulent mass of epidermic scales. This state of the nail is sometimes associated with alphos, but more frequently with eczema, and not uncommonly with eczema fissum of the tips of the fingers.

In another case the nails are reduced in thickness to a mere film, and are so soft and brittle in texture that they split and break with the most moderate pressure, *mollities et fissura unguium.*

Another change in the nails is a fibrous state of those organs, which appear to be made up of a thick stratum of fibres, closely packed together, but becoming loosened here and there, so that separate fibres are met with on the surface. The surface of the nail is necessarily rough, ragged, discoloured, and marked by numerous dark longitudinal lines;

and, besides being very unsightly, adheres like a burr to any rough material with which it comes in contact.

Another variety of degenerated nail has the appearance of being *eroded*, or worm-eaten, *tinea unguium*, and sprinkled over more or less abundantly with hollow pits. This state of the nail, like the preceding, is very unsightly, and the sufferer applies for relief, rather on account of the ugliness of appearance, than from any real inconvenience. Unhappily, medicine can afford very little aid in these cases.

ONYCHIA.

Onychia is an inflammation of the matrix of the nail, attended with suppuration and ulceration. Bound down by the horny nail, the swelling and suppuration give rise to great pressure on the sensitive matrix, and the pain is of the most intense kind. Sometimes the inflammation sinks deeply into the soft parts, and the periosteum and bone are attacked; but at all times the disease is serious, from the presence of pain and the development of unhealthy granulations, which exude an ichorous, sanious, and fœtid discharge.

Onychia may have its origin in local or in a constitutional cause. The local causes are external injury, a bruise, a splinter, a puncture, or a foreign body lodged beneath the nail; it is sometimes produced by the pressure of the fleshy wall against the lateral edge of the nail, causing that condition which is termed an *in-growing nail*. The more common constitutional causes of the disease are eczema, scrofula, and syphilis.

When especially obstinate and arising from idiopathic causes, and when, moreover, the morbid action sinks deeply into the tissues of the finger, the disease has been termed *onychia maligna*. Onychia maligna commonly begins in the follicle of the nail, and is attended with excessive pain and the secretion of an offensive discharge.

Onychia is not unfrequently accompanied with irritative

fever, the consequence of severe pain and loss of sleep, and the constitutional disorder tends materially to the aggravation of the local disease.

The *diagnosis* of onychia is self-evident, the only disease developed in the same situation and at all approaching it in appearance, being *panaris*, or whitlow. Whitlow, however, is a simple phlegmon of the end of the finger, and does not, like onychia, begin beneath the nail; if it reach that situation, it does so only by extension.

The *treatment* of onychia must be local and constitutional, local to subdue the congestion of the inflamed part, to relieve the pressure, to give early exit to pus, and to stimulate to a healthy healing process; and constitutional, to remove internal causes of irritation, and maintain and support the powers of the system against the morbid influence of the local disease.

The general principles of local treatment are, position, maintenance of an uniform temperature, and exclusion of air by a dressing of basilicon ointment. If foreign bodies are present, they must be removed in the first instance; and if the evil be kept up by the nail, either in consequence of its thickness and density or of its pressure upon the inflamed part, the nail must be scraped, and the offending parts gently cut away. It must be remembered that by scraping the nail may be reduced to the thinness and softness of cuticle, and that in this way one of the chief difficulties in the treatment of onychia, and one of the chief causes of its virulence, may be swept away. We may thin the nail so as to reach the bed of the pus, and liberate the matter with ease; and the same operation practised along the middle line permits of the folding of the nail, and at once relieves the pressure of the edges of the nails on the lateral walls. It is useful in some instances to introduce a piece of dry lint between the tumid lateral wall of the matrix and the border of the nail. Exuberant granulations must be kept down by the application of a strong solution of nitrate of silver or

sulphate of copper, and the part must be dressed with a desiccative or mildly stimulative ointment, such as the benzoated ointment of oxide of zinc, the unguentum resinæ flavæ, or an ointment of Peruvian balsam.

The *constitutional* treatment of onychia must be regulated according to the indications presented by the general system. If the evil in the constitution be the eczematous or strumous diathesis, if it be syphilitic or cachectic, the treatment must be adapted to those states of the organism. Under all circumstances digestion and secretion should be regulated, and we should keep up the powers of the system by nutritious diet and by tonic medicines, to enable it to resist the attack of disease, and to furnish the means of restoration of the disorganized parts to a healthy status. The remedies the most likely to be needed are, quinine and iron, iodide of iron, and the mineral acids with vegetable bitters.

CHAPTER XXI.

AFFECTIONS OF THE HAIR SYSTEM.

THE HAIR SYSTEM is composed of two parts, the *hair* itself, and the *follicle* in which the hair is implanted; and the diseases of these organs are represented by their aberration from the normal standard of structure and function. In the case of the hair, the aberration may be one of *quantity*, *length*, *colour*, and *texture;* and in the case of the follicles, there may be *excess*, or *diminution*, or *alteration* of secretion, or an organic change of structure.

The disorders of the hair having reference to quantity and colour are, hirsuties, hairiness, or excess of hair; alopecia, or deficiency of hair; and canities, or whiteness of hair. The disorders of texture, remarkable especially for brittleness of structure, are fragilitas crinium, and trichosis or ringworm. And the disorders of the follicles are, simple alteration of secretion, and an organic change in the structure of the follicle constituting favus, kērion or scalled head, and sycosis.

In a tabular form the diseases of the hair system may be arranged under three heads, as follows:—

1. *Diseases of quantity and colour.*

Hirsuties,	Alopecia calva, vel calvities,
Alopecia vulgaris,	Canities.
„ areata,	

2. *Diseases of texture.*

Fragilitas crinium,
Trichosis.

3. *Diseases of follicles.*

Morbi sebacei,	Kērion,
Favus,	Sycosis.

Hirsuties, or hairiness, is not intended in this place to embrace physiological aberrations of development of hair, but simply those that are pathological in their nature, and are referrible to a morbid cause. As all parts of the body, with the exception of the palms of the hands and soles of the feet, are organized for the production of hair, and our normal type of organization in that respect is to be looked for among the inferior animals, we may occasionally meet with examples of extraordinary hairiness upon the shoulders, on the loins, upon the chest and abdomen, and upon the limbs; and not only in men, but also in women. The appearance of hair in women obeys also another cause, namely, the cessation of function of the ovaries, a condition that serves to unsex them and bring them under the operation of laws which govern the opposite sex. These, however, being examples of physiological phenomena, are not the matter which we propose to treat of here.

The physician is appealed to for the relief of hirsuties chiefly in the case of women, and the common seat of the excess of hairiness is the upper lip, the chin, the maxillary and submaxillary region, the chest, the arms, and sometimes the entire body. The age of the patients may range from childhood to twenty-five or thirty, and sometimes to a later period; and the causes which will be found the most common in the production of this state are nervous and nutritive debility. In seven cases now before us, nervous debility, anxiety, and affliction, are the remote predisposing cause in four; deferred and arrested menstruation in

two; and defective nutrition of the skin in the remaining one, a girl of ten years of age, in whom the skin is dry, discoloured, brown, and unperspiring. In one of the cases, menstruation was protracted until the age of sixteen, the place of that function being taken seemingly by one of abnormal hair-formation; but when the menstrual function was fully established, the hair ceased to grow, and gradually fell off until it entirely disappeared.

It is remarkable, and worthy of note, that some cases of alopecia are preceded by a superabundance of hair, and the thought is suggested that the skin may become exhausted by excessive function. We throw out the idea for the student's reflection.

The *treatment* of hirsuties must be directed to the removal of the remote predisposing cause and of the debility engendered by that cause. After the general functions of the body have been regulated, we have derived advantage from small doses (two or three minims) of Fowler's solution, and the local use of the juniper-tar soap, and active ablutions with cold water. Depilatories should be discountenanced as much as possible, and especially plucking out the exuberant hairs with tweezers, as remedies calculated to injure the skin, to increase the evil, and frequently to add to the existing deformity a papular eruption induced by irritation of the hair-follicles. The use of the razor in aggravated cases is more rational, and sometimes necessary.

Alopecia, derived from αλωπηξ, a fox, because foxes were often seen to be more or less divested of hair when suffering under the mange, is used at present as the generic designation for thinning of the hair and baldness, and offers three varieties: namely, simple thinning of the hair, or alopecia vulgaris; total loss of the hair of limited extent, alopecia areata, or simply area; and total loss of the hair of the scalp, and sometimes of the entire body, the result of disease, and not of old age, alopecia calva, or calvities. This form of calvities may be further distinguished as calvities juvenis,

in contradistinction to the baldness of old age, calvities senilis.

Alopecia vulgaris may exist to a moderate degree, as the result of a simple fall of the hair, *defluvium capillorum*, at the change of the seasons or under the influence of alterations of health; or it may proceed to the extent of inducing a state not far removed from calvities, the distinction between alopecia and calvities being, as we have already shown, the presence of hair, although scanty in quantity, in the former, and its complete absence in the latter.

Alopecia is most frequent on the scalp, but is occasionally met with in the beard. It owes its origin to a defective state of nutrition of the skin, and is most commonly the result of nutritive debility; at other times debility of the nervous system is the prevailing cause; less frequently it arises from assimilative debility; and occasionally proceeds from local debility or hereditary predisposition. The scalp is sometimes pale, sometimes thin, and sometimes discoloured; sometimes the cuticle is raised in scurf, sometimes it is smooth and polished, sometimes moist, sometimes dry and parched, and not unfrequently the follicles are distended, and, as it were, choked with epithelial exuviæ. These are so many indications of unhealthy function of the skin, and are suggestive of the means which should be adopted for the relief of the disorder in chief.

Alopecia is frequently accompanied by other changes in the hair, arising from a similar cause to that which gives rise to itself; for example, canities, area, calvities, alopecia barbæ, and hirsuties. The latter complication is curious, and shows that the alopecia is governed by a constitutional cause, by a disturbing cause, equally abnormal in the two processes, and resulting in an atrophy of the hair-bulbs in one situation, and a simultaneous hypertrophy of the hair-bulbs in another. Other complications of alopecia are: pityriasis, scleroderma, inflammation of the follicles, stearrhœa, and general cachexia of the skin, visible in other

parts besides the scalp. Further, it is not uncommon to find alopecia in association with melanoderma and melasma oculi.

Females are more liable to alopecia than are males; their susceptibilities are greater, and they are more open to the influence of disturbing causes. In one hundred cases, sixty-three were females, and thirty-seven males; but this great difference is not the consequence of constitution alone, being partly referrible to the greater importance of a healthy head of hair to females than to males, and the greater care which is usually given by them to personal appearance. The age at which alopecia is most frequent is between twenty and thirty; in the one hundred cases already referred to, sixty-three were of this age; while between fourteen and twenty, the number was twenty. Of the same number—namely, one hundred—eighteen cases had existed at the time of application for treatment between five and ten years; seven between ten and twenty years; while two had lasted twenty-two and twenty-six years respectively.

The *treatment* of alopecia is foreshadowed in the foregone delineation of its causes. There is local debility, and commonly general debility. When the latter is evident, the general principles of treatment applicable to cutaneous diseases must be adopted: the secretions must be regulated; tonics may then be administered, chalybeates, if there be anæmia; and when the tone of the skin is evidently at fault, and where there exists defective nutrition of the skin, arsenic may be given, by means of the ferro-arsenical mixture, in doses of two to three minims, three times a day, with meals.

The local treatment must consist of alterative and tonic applications; for example, stimulants, either in the form of lotion or pomade, in some cases preceded by a thorough saponaceous ablution with the juniper-tar or petroleum soap. In addition to this plan, plentiful combing and brushing, with the view of stimulating the circulation and innervation

of the skin. The best lotion for alopecia is the following: ℞ olei amygdalarum dulcium, liquoris ammoniæ fortius, āā ʒj; spiritûs rosmarini, ʒvj; misce. Or the following pomatum: ℞ unguenti stimulantis, unguenti hydrargyri nitrico-oxydi, āā ʒij; adipis purificati, ʒiss; olei essentialis amygdalæ amaræ, ♏ij; misce. The formula for the unguentum stimulans is as follows: ℞ cantharidum pulveris, ʒvj; adipis purificati, ʒiij; macera, cum leni calore, per horas viginti quatuor, et per chartam bibulam, cola. It is hardly necessary to remark that this stimulant ointment is too strong for use otherwise than in a diluted form.

Alopecia areata, or area, is a total loss of the hair in a circumscribed and circular patch, and sometimes in the form of an elongated band, which has been compared to the trail of a serpent; hence the term *ophiasis*. The fall of the hair in area takes place suddenly, generally unobserved by the patient; and the first intimation he receives of its existence is the sudden discovery of a bald spot. The denuded portion of the scalp is remarkable in appearance; it is white and polished, evidently less vascular than the surrounding skin, less sensitive, thinner, depressed towards the centre, and entirely divested of hair. The case is not one of simple casting of the hair, as in alopecia; it is in reality arrested formation of hair; the formative function has ceased, and hair is no longer produced, nor is it capable of production until a more healthy condition of the skin be restored, until it recover its normal vascularity and sensibility, and with those conditions, its healthy nutrition. Pathologically, we must regard area as a suspended innervation, as a kind of paralysis of innervation; and the other features of the disease follow upon this exhausted state of the nerves of the part; circulation is weakened, nutrition is suspended, and the function of hair-production and secretion is at an end.

In area we are impressed with the conviction that the morbid phenomena must begin with a nerve, that the disease is, in fact, a neurosis, and that the more obvious and appre-

ciable signs of the disease are simply its symptoms. In further support of this view, we have the fact of area being more frequently unilateral than bilateral; and where it assumes the riband form, it commonly follows the course of a nerve. But area is not limited to the scalp; it is met with also in the beard, the whiskers, and the eyebrows, and occasionally also on the body and limbs.

The patch or disk of area is commonly single; more frequently, however, there are two, sometimes three or four, and occasionally as many as twenty on the scalp. Their ordinary size is half an inch to one inch in diameter; sometimes, however, they form a patch of larger dimensions and irregular figure, especially on the occiput; occasionally two or three disks are linked together, and form a continuous band, as in the case of ophiasis; and sometimes the morbid action, beginning with a few isolated disks, is quickly propagated to the entire scalp, or even to the entire body, constituting calvities.

Area is more common in the female than in the male sex, but occurs at all periods of life, from the age of two years to sixty, the range of greatest frequency being from five to forty years. As may be inferred from its pathological nature, it is always slow in its progress, lasting several months, and more frequently years. Of eighty cases, nine had lasted between five and ten years at the time of application for treatment; five had resisted treatment between ten and fifteen years, and two had been in existence between fifteen and twenty years. In reference to cause, fifty-seven of this number were dependent on nutritive debility, eleven on nervous debility, nine on assimilative debility, while three owed their origin to local debility. The remote predisposing causes in these cases, arranged in their order of frequency, were as follows: scarlatina, rubeola, and whooping-cough, organic disease, anxiety, fatigue and affliction, pregnancy and parturition, rapid growth, anæmia, neuralgia and nervous shock, deficient food, climate and seasons, con-

genital weakness, deranged menstruation, fever, and eczematous diathesis. The local injuries that had resulted in area were: accidental avulsion of the hair, stinging by bees, and a bruised wound.

Area commonly exists independently of any other form of disorder of the skin, but is occasionally combined with other affections; for example, with alopecia vulgaris, pityriasis capitis, eczema, canities, trichosis tonsurans, and alphos. We have also seen it associated with melasma oculi.

The return of hair upon the bald patches of area is always slow, but sometimes more rapid than could be supposed from a view of the nature of the disease. Nevertheless, the restoration of the hair is greatly influenced by the predisposing cause; after pregnancy the hair has reappeared in from one to three months; this may be regarded as a case of accidental lowered vitality; but when the constitutional powers of the patient are exhausted, a longer time will be required. It is also worthy of remark, that, on its reproduction, the hair is usually white or fair, like that of an infant; but as it obtains an increased power of growth, the natural tint of the adult is gradually restored.

The *treatment* of area, as of alopecia, calls for a generous and appropriate diet, with the aid of tonics, general and specific, and the local use of stimulating remedies.

If fifty-seven out of eighty cases owe their origin to nutritive debility, nearly three-fourths of the cases of area will require a generous and nutritious diet, the aid of medicinal tonics, and, in the event of no other indications being present than that of defective nutritive power, arsenic, in doses of two minims thrice in the day. The same principle of treatment is applicable to another eighth of the cases, namely, those dependent on nervous debility; therefore nearly seven-eighths of the whole come under this method of management. In the smaller number of cases dependent on assimilative debility, the digestive organs must be regulated before the tonic regimen be commenced; and in the small fraction of

cases dependent on local causes alone, we may, perhaps, be contented with local treatment.

As a local, and possibly a general derangement of the nerve-tissue constitutes the foundation of area, we shall find phosphoric acid of value as an element of our tonic remedies, and especially that most perfect of all neurotonics, arsenic, administered in combination with iron, as in the composition of the ferro-arsenical mixture already mentioned (page 91).

The *local* remedies applicable to area are, pencilling with acetum cantharidis, friction with the strong unguentum stimulans (page 432), painting with the compound tincture of iodine, or with the oleum sinapis essentiale; while in some cases of an obstinate kind we have derived most beneficial results from croton oil, both in tincture and in pomade.

Alopecia calva, or calvities, requires to be distinguished by the addition of the word "juvenis," to avoid its confusion with calvities senilis, the natural consequence of old age. Calvities juvenis is a total absence of hair, not limited, as in area, to a few patches, but extending to the entire head, sometimes to the eyebrows, the eyelids, and face, as well as to the head, and sometimes to the entire body. The relation of this form of baldness to area is shown by the fact of its often beginning as area, and in some instances alternating with that form of the affection. One of our patients, aged twenty-four, had area in childhood; the hair returned to its normal state, but in a recent attack not a hair of the body has been spared; and another, now suffering from area, had an attack of calvities capitis ten years before.

In twelve cases of calvities juvenis, five affect the head alone, four the eyebrows, the eyelids, and the face, together with the head, and three the entire body. The ages of these patients range from five years to forty-one; five being under twenty, two between twenty and twenty-five, four between thirty and thirty-five, and the remaining case, forty-one. The sexes are evenly divided, and the duration of the disease

ranges between four months and eleven years; in five the duration is under one year, and in three it exceeds five years.

The predisposing cause in eleven of the twelve cases is nutritive debility, that of the remaining case, nervous debility, the consequence of anxiety, and accompanied with melasma oculi. The remote predisposing causes are, congenital debility, scarlatina, rubeola, parturition and pregnancy, neuralgia, mental anxiety, and the climate of India.

The evidence of defective nutrition of the skin is more obvious in calvities juvenis than it is in area; the scalp is always pale, remarkable for its thinness, and somewhat insensible. The thinness of the scalp approaches often to a state of atrophy, the skin is more or less transparent, the venous plexus of the scalp is visible through it, and is nearer the surface than natural; and the sutures of the cranium may be traced with ease; moreover, a strong stimulant application produces less effect than it would upon a healthy head. Again, when the hair begins to appear, it is apt to be white at first, and, upon attaining a fuller and hardier growth, to resume its natural colour.

There is evidence also of the defective nutritive power being in some instances rooted deeper than the surface; in one case the cranium was imperfectly developed, and the child was feeble in intelligence. Other indications of degradation of nutrition were perceptible in a gentleman aged thirty-two, in whom there existed also scabrities unguium, while in another case the disease had been preceded by trichosis tonsurans. The exhausting consequences of scarlatina and rubeola were shown in three of the cases, and that of intense neuralgia following scarlatina in one. The influence of the uterine sympathies on the organism is exhibited in one of the patients, aged forty-one, who was attacked with area at thirty-three, with calvities totius corporis after her first parturition and again during her second pregnancy, the hair having returned in the mean time.

The *treatment* of calvities is identical with that of area; but we may note the beneficial effects of the juniper-tar soap as a means of ablution of the skin, and of preparing a fresh surface, previously to the application of the stimulant lotions and unguents. In these cases we have found chloroform an useful addition to our stimulant remedies; while our chief reliance is on arsenic as an internal remedy.

CANITIES.—Under the head of Canities it is not our intention to enter upon those aberrations of colour of the hair that are purely physiological, nor to treat of the whiteness of colour that belongs naturally to advanced age, but simply to discuss the blanching of the hair, which comes before its proper time, and is met with in younger persons. In these cases there is commonly no alteration of quantity or texture of the hair, but a number of white hairs are found dispersed among the rest. These hairs are sometimes white from end to end, as though the colour had been discharged at once throughout their whole length; sometimes, and more rarely, they are white only towards the root, their whiteness being the result of growth. There is no other difference of character traceable in their appearance; they are met with scattered among the other hair, but are sometimes more abundant upon one side or upon one region of the head than upon the rest.

Morbid canities is more common in the female than in the male: of eleven cases of which the register is now before us, nine are female and two male. The ages range between fifteen and forty, three being under fifteen, and three under thirty. Three only are associated with other derangements of the hair, namely, alopecia; two having alopecia of the head, and one alopecia of the beard.

The governing cause of the morbid condition of the hair is nutritive debility in seven cases, assimilative debility in three, and nervous debility in the remaining one; the remote predisposing causes being as follows: over-rapid

growth of the body, headache, cold climate, parturition, and deranged menstruation.

The principle of treatment of canities is to remove the causes of debility existing in the constitution, by tonics, especially chalybeates and phosphoric acid, and, where defective nutritive power prevails, by means of the ferro-arsenical mixture, and to stimulate the scalp locally by abundant brushing, and by the use of some mildly stimulating lotion, such as the ammonia lotion advised in cases of alopecia.

Diseases of Texture.—Passing now from diseases of quantity and colour to disorders of texture, we are reminded of the physiological qualities of the hair, the most remarkable of these qualities being toughness and elasticity. These properties are obviously due to the perfection of elaboration of the cell-tissue of which the hair is constructed; the soft mucous cells of the rete mucosum are, by virtue of the power of elaboration which belongs to cell life, converted into the horny tissue of the cuticle, and at the same time the analogous cells of the pulp of the hair are transformed into the still more horny, dense, and fibrous structure of the hair. But if we suppose a deficiency of vital power in these formative cells, the result must be imperfect elaboration and the production of a tissue which is wanting in the properties that normally belong to it; that, in the case of the hair, it may be neither tough nor elastic, but, on the other hand, may be brittle and fragile. Such a morbid condition of the hair does, in fact, occur, and a state of *fragility* of the hair sometimes presents itself to our notice, and demands our attention.

Fragilitas crinium is met with in two well-marked forms, one in which the hair of the head, or of the beard, breaks upon the most moderate traction, as in the act of combing and brushing, and another in which a certain amount of toughness remains, which resists complete rupture,

but makes itself evident as a partial break or bruise of the shaft of the hair. In the latter case an individual hair may present a series of bruised spots, occurring at short intervals throughout its entire length, and giving it a jointed appearance. On close examination the cuticle of the hair is found to be broken through, together with the exterior of the fibrous portion, leaving the central part of the fibrous portion intact; the broken ends of the fibrous structure stand out like the hairs of a brush, and, as remarked by Dr. Hermann Beigel, who has also observed this condition of the hair, the broken spot is larger than the rest of the diameter of the hair, and resembles two outspread brushes meeting each other by their ends. Furthermore, these bruised and broken spots are generally white or greyish in colour, and resemble particles of scurf dispersed among the hair. It is this unpleasant appearance that first attracts the attention of the patient, and induces him to seek our counsel for its relief.

Like other defects of structure, fragilitas crinium originates in nutritive debility, and calls for the same method of treatment as that which is applicable to canities. A physician who lately consulted us for this state of hair informed us that it began while he was pursuing his studies in Edinburgh, that he recovered during a short residence in Australia, but that it reappeared on his return to Scotland.

TRICHOSIS, or TINEA, or COMMON RINGWORM, is a disease of the hair, of the epidermal lining of the hair-follicles, and of the adjacent interfollicular epidermis. The hair and the epidermis are altered in structure; the hair is thin, shrivelled, discoloured, faded, bent, and brittle, breaking off close to the skin, as though it had been eaten through by the grub of the clothes-moth or *tinea;* or had been rudely shorn, hence the term *tonsurans;* and the epidermis is dry, laminated, and furfuraceous, forming a thick uneven layer on the surface, and distending the follicles by its accumulation.

The disease presents some variety of appearance, having

reference to distribution and degree. It commonly occurs in round patches, varying in size from half an inch to two inches or more in diameter; this is its *aggregated* form: at other times it is *dispersed* over the scalp in small spots, each involving from two to ten or twelve hairs. The varieties in degree are manifested by the force of the disease being expended chiefly on the interfollicular epidermis, the epidermal lining of the follicle, or the hairs. Other varieties result from its situation on the scalp or on the body or limbs, and also from the presence of inflammation in various degrees, and giving rise to simple congestion or suppuration.

Trichosis tonsurans, or tinea capitis, is the common and typical form of ordinary ringworm of the scalp; it occurs in the shape of round or oval-shaped patches, slightly raised, covered with a thick stratiform layer of furfuraceous scales, sometimes papillated from the prominence of the follicles, and more or less denuded of hair, any hairs that remain on the patch being of a yellowish-grey colour, dry, shrivelled, bent, and withered; sometimes several small bundles are matted together, and lie entangled with the furfuraceous base; but more frequently the hairs are broken off close to the surface of the patch. This is the porrigo scutulata of Willan, the term porrigo being synonymous with furfuraceous, and scutulata significant of the resemblance of the patch to a *scutum*, or shield.

The scuta of trichosis tonsurans commonly appear on the summit of the head; sometimes there is but a single patch, sometimes three or four; or there may be one or two large scuta, and many small ones scattered over the surface. Occasionally, in slighter attacks, the patches may all be of the smaller kind referred to under the head of trichosis dispersa; while in a chronic case the disease may spread over the entire scalp, trichosis diffusa, and leave no more than a fringe of hair around its circumference.

Trichosis tonsurans may be complicated by inflammation of the diseased patch; and the inflammation may be erythe-

matous, exudative, or pustular. Simple erythema may occasion thickening of the patch. The exudation, when it occurs, is muco-purulent, and agglutinates the furfuraceous scales and morbid hair into a mass; and the pustules, when they burst, produce a similar result.

Trichosis pityriasica.—In the common, aggregated, or scutiform variety of trichosis tonsurans, the surface of the skin, represented by the epidermis, and the follicle and hair, or the deeper portion of the skin, are equally affected, and the diagnosis of the case is very simple; but in milder cases the epidermis alone may be attacked, and the hair and follicles more or less completely escape; this constitutes a pityriasic form of trichosis. The pityriasic patches may occur at the beginning or at the end of an attack of the ordinary disease; they may be present on parts of the scalp, in association with the scutulate form, or they may occur on one member of a family of children, while others of the same family are suffering from the ordinary form of the disease. The student must bear this in mind in making his diagnosis.

Trichosis annulata.—When trichosis attacks the body and limbs, it assumes a superficial and centrifugal character; it spreads by the circumference, while the erythema subsides in the centre, and thus forms a ring of varying dimensions, sometimes half an inch, and sometimes many inches in diameter. The border of the ring may be simply a raised erythematous ridge; more frequently it presents a row of papulæ, and sometimes a range of minute pustules. The trichosis or tinea annulata may therefore be erythematosa, vel papulosa, vel pustulosa, while the central area remains more or less pityriasica.

The spreading character of trichosis annulata is supposed to be due to the absence of the deep follicles and large hair-pulps of the scalp; and this, no doubt, is in some degree the fact; but instances are not rare in which the same centrifugal progression is seen upon the scalp, where the rings

are more prominent than on the rest of the skin, and where they are frequently accompanied with a double and even a treble row of pustules.

In trichosis annulata it is not uncommon to find the circumferential ring to have become the point of departure of a second ring, and the second ring of a third; while the area of the ring is commonly of a yellowish colour, slightly furfuraceous, and sometimes papular. And occasionally, when several rings occur in the same region, their segments are apt to become intersected, and irregular forms arise, which have received the name of *trichosis gyrata.*

Trichosis annulata may be associated on the same person with trichosis tonsurans, or it may exist where no other form of trichosis is present. It is the form in which the disease is met with in adults who have associated with children affected with ringworm; and it frequently attacks one member of a family, while another may have the commoner trichosis tonsurans. The rings of this disease are usually solitary; sometimes several are dispersed over different parts of the body; but they are never numerous.

The relative frequency of the three varieties of trichosis, namely, tonsurans, annulata, and pityriasica, in seventy cases was: fifty, tonsurans; fifteen, annulata, and five, pityriasica. The proportion of males to females was forty-two to twenty-eight; the age of origin, two years to fourteen, and the period of duration as follows: under one month, nineteen; between one month and six months, thirty-four; between six months and one year, nine; and between one year and four years, eight. The annulate forms are found at the extremes of age, beyond the limits of the tonsurant variety; in one instance, at three months, in another at six months; and at the opposite extremity, at the ages of sixteen, nineteen, twenty-six, and forty-six. In two of the seventy cases the tonsurant and annulate forms were present together in the same person, while in one the annulate form had assumed the pustular character. There were also in these seventy

cases three examples of complication with eczema and two with pityriasis.

Diagnosis.—Trichosis tonsurans is known by the alteration of appearance of the hair, by the bare places which are left on its breaking off near to the level of the skin, and by the furfuraceous, elevated, and sometimes papillated unevenness of the surface of the morbid patches. Trichosis pityriasica is also recognized by the breaking of the hairs which grow upon the furfuraceous spots, by the small extent of the spots, their seat on the scalp, and their occurrence in association with cases of the tonsurant variety of the disease. Trichosis annulata is also known by negative rather than by positive characters, its solitary development, and its association with ringworm in other members of the family or community in which it occurs.

Cause.—Trichosis is a disease of nutritive debility, and is essentially an arrest of development of the hair-cells and cells of the rete mucosum. The cells retain their primitive molecular or granular character; and the granules, taking on a proliferous growth, are converted into a tissue closely resembling that of a mucedinous vegetation. The state of the hair and of the epidermis composed of this phytiform tissue may be expressed by the term "granular or phytiform degeneration;" and their composition explains the brittleness of the hair, and the loose and furfuraceous condition of the epidermis.

Looking to the predisposing causes of the disease, we find them arranged in the following order: measles and scarlatina, deficient diet, anæmia, weakly parentage, fever, change of climate, and in the instance of an adult, anxiety and affliction.

But there are not wanting those who see in the phytiform tissue already noticed a true plant of the mucedinous type, composed of branches and sporules or seeds, and termed trichophyton tonsurans, and who believe the cause of the disease to be the sporules of the plant, which, alighting on

the skin, perforate its horny layer, and reaching the more succulent rete mucosum, vegetate and grow at the expense of its juices, sending up branches through the pulp of the hair into its shaft, and destroying its normal tissue for its own proper nutrition. The trichophyton, in this view of its nature and habits, is a parasitic plant, originating extraneously to man, conveyed to him by seeds, and pursuing an independent existence at the expense of his tissues, producing in its turn seeds in vast numbers, and becoming, by means of these seeds, the source of further contagion. It is not denied that there may be constitutional causes favouring the growth and development of the plant; indeed, causes of this nature are necessary to prepare a morbid soil for a morbid growth. We may simply say that the parasitic theory does not commend itself to our belief, and the facts admit, in our opinion, of another and more scientific explanation.

Prognosis.—There is nothing grave as touching the life of the individual in trichosis; but the disease is obstinate, as diseases of constitutional debility commonly are, and its evils are increased by an unnecessary amount of alarm with regard to its contagious nature. We do not wholly deny the contagion of ringworm, but we doubt it seriously, and the more so, as all the phenomena which are usually taken to be evidence of contagion admit of an explanation equally favourable to the opposite theory. The public are impatient with regard to ringworm, and are apt to magnify the vexations attending it more than they deserve. It certainly may run through an entire family, but it never attacks adults in its most severe or tonsurant form; and in reference to duration, that may be stated as being generally under twelve months.

Treatment.—The management of trichosis calls for a generous diet and generous regimen, with the aid of tonic medicines, and a local treatment of the tonic or stimulant kind. Well-fed and well-tended children, even when of delicate parentage, never suffer from ringworm, and a nutri-

tious diet cures it without the assistance of medicine. It commonly occurs in schools, where children are generally underfed, but sometimes under the eye of parents, whose knowledge of the proper feeding of children is not equal to their wisdom in other respects.

The tonics which we principally have recourse to are the nitromuriatic acid with tincture of orange-peel, the phosphoric acid with tincture of the sesquichloride of iron and tincture of orange-peel, or, as a remedy enjoying the double quality of an assimilative tonic and a cutaneous tonic, the ferro-arsenical mixture.

The local treatment consists in ablutions with the juniper-tar soap, plentiful brushing and combing, and inunction with the unguentum picis liquidæ, vel juniperi, or with the nitric oxide of mercury ointment, diluted in the proportion of one to three parts. The morbid action in the skin, and the inflammation which sometimes accompanies it, are of the low type, and require stimulating treatment: hence all the stimulating applications in the pharmacopœia are useful when employed with moderation, from the most refined formulæ of the mercurial remedies down to the old woman's ferrugino-astringent atramentum. Some practitioners prefer a solution of bichloride of mercury; some the acetum cantharidis, or simple acetic acid; some the compound tincture of iodine, the two latter especially for trichosis annulata; and some an iodine ointment.

The sectaries of the parasitic theory, using the same remedies, call them parasiticides, and believe that they effect a cure by immolating the parasitic vegetation; and the medical parasiticides of France go the length of pulling out every individual hair from the diseased skin, and after clearing a small space, saturate it with the bichloride of mercury solution. They find this process more speedy and certain, not to say painful, than the application of simple stimulant remedies; but they forget that, in tearing the hair from its pulp, they are merely employing a stimulant remedy

of a very effectual kind, and one which has been found most useful in other diseases of the hair-follicles, besides trichosis.

Diseases of the hair-follicles may either be simple derangement of function of the sebaceous glands of the follicles, such as stearrhœa or excess of secretion, and narcosis folliculorum or torpor of secretion, or they may be an organic change of structure of the epidermal lining of the follicle, constituting favus; a suppurative inflammation of the follicles of the scalp, called kērion; or a congestive and suppurative inflammation of the hair-follicles of the face, namely, sycosis.

The morbi sebacei folliculorum capitis originate in a chronic inflammation of the follicles, attended in some instances with the production of a morbid secretion which collects among the roots of the hair, and forms a stratum of some thickness on the surface of the scalp, and in others with an arrest of the sebaceous secretion, an accumulation of dry epithelial exuviæ in the follicles, and a furfuraceous desquamation of the cuticle. The former of these morbid states is termed stearrhœa, the latter narcosis folliculorum. Both are accompanied with pruritus, which is sometimes very troublesome; and the latter disease gives rise to the fall of the hair and consequent alopecia.

The treatment of these morbid conditions of the hair-follicles is, ablution and friction with the juniper-tar soap, and the subsequent inunction of a pomade consisting of one part of the nitric oxide of mercury ointment to two of elder-flower ointment or simple benzoated lard. To this may be added brushing and combing in abundance, with the view of setting up a more active circulation and innervation of the scalp.

Favus is a disease of the epidermal lining of the follicles of the hair; it is characterized by the formation of yellow disks around the apertures of the follicles, encircling the hair, and increasing to the diameter of several lines. The disks are slightly raised, flat or somewhat concave on the

surface, and bordered by a prominent rim, so as to suggest the idea of a cup. The substance of the cup is formed in the rete mucosum, and is therefore covered by the horny layer of the epidermis; hence the smoothness of the face of the cup, the well-defined aperture in the centre perforated by one or two hairs, the elevated growing border or rim of the cup, and the decline of the surface beyond the edge of the cup to the level of the sound skin. Moreover, the integument adjoining the cup is red and congested, and the cuticle furfuraceous.

When favus occurs in isolated cups, scattered over the scalp, it is termed *favus dispersus* or favus urceolaris; but when a number of adjoining follicles are affected, it is called *favus confertus.* Sometimes the cups of favus confertus constitute a round or oval patch of moderate dimensions, favus scutiformis, and occasionally the disease spreads over the whole head, to the margin of the scalp. The conformation of the cup is most appreciable in the isolated form of the disease; where a number of cups approximate by their edges, favus cohærens, they resemble somewhat a honeycomb, hence the term *favus;* and in a still more confluent form the boundary-lines are obliterated, and the raised and cupped borders are only distinguishable around the circumference of the mass.

Favus is most commonly met with on the scalp, but occasionally on other parts of the body; for example, the pubes, the limbs, and even beneath the nail. It may remain for some time in the state just described, but after awhile the yellow matter of the disk desiccates, and constitutes a subcuticular crust; the crust breaks over its concave surface, and the pale-yellow desiccated substance of which it is composed is dispersed in small fragments among the hair, the central portion of the disk remaining threaded upon the hair by which it was originally perforated. These changes are necessarily accompanied with pruritus and irritation of the skin, and the irritation of the skin is commonly followed by

a muco-purulent exudation and suppuration, so that, in an advanced stage of the complaint, the scalp may be covered with a heterogeneous mass of yellowish-grey fragments, broken crusts, scabs, moist discharges, matted hair, and ulcerations, in the midst of which the indications of the primary disease may scarcely be discoverable, and require to be sought for in the circumference of the patch. Moreover, the lymphatic glands are apt to enlarge, and sometimes to suppurate.

If a crust of favus be lifted from its bed, it will be found to be convex and slightly funnel-shaped upon its under surface; the compression exercised by the cuticle has checked its prominence outwardly, and the continued accumulation of the yellow matter has caused a deep hollow on the surface of the skin; the basement membrane is unbroken; there is no lesion of continuity of the derma, but the continued pressure has occasioned absorption of the papillary layer, and has forced open the hair-follicle even to the root of the hair, and in some instances caused absorption also of the hair papilla, and consequent fall of the hair. On the removal of the crust, the derma gradually rises to nearly its original level, but is commonly so much disorganized by the compression which it has undergone, that the hair-follicles are destroyed, and it remains for ever after a bald cicatrix-like spot. If to this serious damage to the skin be added the consequences of ulceration, we may form an idea of the ultimate permanent injury inflicted by favus. The cicatrices remain for the rest of life; the integument is attenuated; the follicles are obliterated; and permanent baldness is the result.

At the commencement of favus the hair is unaffected, and it commonly retains its healthy character until it is uprooted by the disease; nevertheless, it is sometimes altered in its appearance and texture, and is found to have undergone in a slight degree the kind of degeneration of structure which is met with in trichosis. And if for one moment we compare trichosis and favus, we shall perceive at a glance that the

hair in one and the follicle in the other, is the primary seat of the disease. In pathological nature, these diseases resemble each other very closely; both present a phytiform degeneration of cell-structure, and both are claimed by the phytopathologists as parasitic diseases, the parasite of trichosis being, at we have seen, the trichophyton tonsurans, and that of favus the achorion Schœnleinii, the yellow mass of favus, according to these pathologists, being an accumulation of the vegetation of the achorion, consisting of stems, branches, and sporules.

We have elsewhere endeavoured to prove that the yellow substance of favus is a granular degeneration of the cells of the rete mucosum, and that the yellow colour of the mass most probably results from a purulent transition of the elements of the cells.

Diagnosis.—In its fully-defined form favus is unlike every other cutaneous disease; the yellow cupped disks, with well-defined rounded borders, are pathognomonic; then the detrita resulting from the breaking up of the crusts, and afterwards the destruction of the hair, and resulting permanent cicatrices and bald areæ. We can barely conceive the possibility of a neglected and encrusted eczema being mistaken for this disease; but in the hands of the inexperienced such an error might happen. It must be remarked that favus is extremely rare in England, and we have seen it only in the workhouse. In Scotland it is more common; but in our daily practice it has come to us from abroad, from France, Spain, and the north-western coast of Africa. In three thousand cases of cutaneous disease occurring in private practice, we have met with favus only twice; one of the two cases being a native of Africa, the other a young lady aged eleven, who has suffered from the complaint since the age of three; she has resided on the French coast, and has undergone the purgatory of avulsion, almost to the destruction of her intellect, but without benefit to the disease. On the summit of the head is a large oval patch of a dry, cream-

coloured substance, resembling dried mud, fissured with cracks, and broken up into small fragments; this substance looks as if it were embedded in the scalp; all trace of the cup-like form is gone, even at the edges, and the concretion has a powerful odour of mice; the hair is gone from the actual seat of the patch, but over the rest of the head is unaffected, excepting in being more harsh and wiry than natural. At one time this patient had a patch of favus on the nose.

Cause.—The cause of favus is a debility allied with struma, a debility of nutritive vitality; and the result of this form of debility is shown in the perversion of cell-structure from a horny animal tissue to an inferior grade of tissue, corresponding with that of vegetable life, a degradation of structure from the animal to the vegetable type, or, as we have previously named it, a granular and phytiform degeneration of the epidermal cell-tissue.

But, according to the phytopathologists, with whom we disagree, favus is a parasitic vegetable growth, originating in the seeds of the achorion, coming from without, and germinating on the spot where they may chance to fall. In our theory we do not recognize contagion as a means of communicating the disease; with the phytopathologists, contagion is the very essence of their opinions.

Prognosis.—In the countries where favus commonly prevails, the disease is remarkable for its obstinacy; in the climate of England, with good food and proper regimen, it speedily gets well. The injury done to the scalp, when the disease has been long in existence, is, however, irremediable; the cicatrices are permanent, and the hair never returns on the denuded spots.

Treatment.—The treatment of favus consists in improving the general health by nutritious diet and tonic regimen; by the use of ordinary tonics for general indications of debility; chalybeates in the case of anæmia; the iodide of iron and cod-liver oil where struma is suspected or obvious.

Locally, the first step must be to remove the crust, and secondly, to soothe the local irritability and inflammation of the skin. Saturate the crusts with oil or lard, and cover the part for twenty-four hours with an oiled silk cap, and the crust will be so far softened as to be raised without difficulty from its bed, and if the procedure be managed with adroitness, without lesion of the skin; if the crust do not separate easily, the inunction and covering may be repeated for another interval of twelve or twenty-four hours. When all the crust is disposed of, the head should be washed with the juniper-tar or petroleum soap, and, after drying, anointed with a diluted nitric oxide of mercury ointment. The washing should be repeated daily, as also the ointment; and with moderate care, any further formation of crust may be prevented, and the skin will return to its healthy state. When there is hair on the head, assiduous combing and brushing may be added to the washing and inunction.

KERION is a suppurative inflammation of the hair-follicles of the scalp, which results in the destruction of the hair-pulp and the fall of the hair. It is known by the occurrence of patches of a deep red or purplish colour, more or less tumefied, sometimes nearly flat, and sometimes prominent, and studded with yellow points corresponding with the apertures of the hair-follicles, and containing a yellowish-white pus. The disease begins suddenly, the first indication of its existence being frequently the fall of the hair and the discovery of a bald, or scalled, and inflamed patch: hence the term *scalled head.* In a few days it is apt to swell up into a tumour of considerable elevation, and extremely tender and painful; and the tumour gives issue, by numerous openings, to a muco-purulent, viscous, and honey-like* fluid. The description of this disease given by Celsus is remarkable

* Hence, doubtless, the term kērion or honeycomb, the puffed interfollicular spaces representing the framework of the comb. We have also compared the tumour to a large fleshy strawberry, which it sometimes closely resembles.

for its accuracy : he compares it to a "furuncle in shape, but larger and more painful. When it maturates, it presents a number of foramina, through which exudes a glutinous and purulent humour." Celsus also describes this fluid as a "glutinous palish humour, of the consistence of honey; or resembling the juice of the mistletoe, or sometimes oil."

Kērion presents two principal varieties, having reference to its distribution; namely, *kērion confertum* and *kērion dispersum;* the former presenting scutiform patches, commonly of one or two inches in diameter, and often perfectly circular; the latter being small in size, and scattered over the head, comprising in their area only a small cluster of follicles. In other respects both varieties are alike, and pursue the same course. In their exudative stage, the hair around the patches is apt to become agglutinated and matted over the disease, and, with the desiccated secretion, to form a crust of considerable thickness, under which the muco-purulent matter collects in considerable quantity. Inflammatory congestion is at the same time propagated to the adjoining skin; there is pruritus and pain; the lymphatic glands of the scalp become enlarged and tender, and abscesses are produced in their neighbourhood.

The tumour of kērion at this period communicates a hollow sensation to the touch; there is fluid under the skin, and not unfrequently under the fascia also, and possibly under the pericranium; but a puncture leads to no good result; the fluid is not pus, but a viscous and colourless albuminous matter, which is speedily absorbed when the disease puts on a curative action. Celsus alludes to this when he says that the tumour "never maturates thoroughly," that it contains "more corrupt matter than a boil, and is also more deeply rooted."

Reviewing the pathognomonic characters of kērion, we shall find them to be, the sudden baldness of the patch, the congested and swollen appearance of the skin, the gaping apertures of the follicles, the pustular spots; these signs

forming a kind of first stage of the disease; then the very considerable tumefaction of the skin, the magnified follicles, the puffed borders of the follicles, the copious and peculiar secretion, the tendency to incrustation, the enlargement of lymphatic glands, and the extension of the disease to the deeper tissues of the scalp; lastly, and as a final stage, the more or less permanent baldness of the diseased spot. In a recent case the hair may be reproduced on the bare spots, but in one of a chronic nature the follicles are too seriously disorganized to produce hair ever again: the hair papillæ are obliterated and destroyed.

Kērion is a disease of childhood and youth; we have never seen but one case in the adult, and that was associated with albuminaria. In fourteen cases the ages of the patients ranged from five to thirteen, nine occurring between five years and ten. Its duration at the beginning of treatment ranged between two months and two years, eight cases having been in existence under three months, and two cases over one year. Of the forms of the disease presented in these cases, eight were examples of kērion dispersum, and six of kērion confertum, one being in the suppurating stage.

Kērion must be regarded as belonging to the same group as trichosis and favus, representing, in fact, an inflammatory and pustular form of the same disease. In trichosis the part chiefly attacked is the hair-pulp and hair; in favus and kērion, the hair-follicle; but between the latter there is the marked difference of one being a dry, the other a moist affection; in other respects the latter diseases are so like, as to suggest the idea of kērion being a pustular favus. The phytiform disorganization of trichosis and favus has not as yet been discovered in kērion, but we have no doubt of its presence, and that kērion must be added to the group of diseases of which that peculiar morbid phenomenon is the leading character.

Of the fourteen cases of kērion already referred to, trichosis annulata was present as a complication in two, and trichosis

tonsurans in one, while a brother of one patient had the former affection, and a sister of another the latter; so that five of the fourteen cases were actually associated either directly or indirectly with trichosis; and in one of the above cases kērion manifested itself on a patch of trichosis tonsurans. Other complications of kērion, occurring each in a single instance, were furunculus and eczema.

Diagnosis.—The student must guard himself against confounding the scalled patches of kērion with area: in one, inflammation or traces of inflammation are present; the other is a baldness resulting from exhaustion of tissue. From the kindred diseases trichosis and favus, the presence of tumefaction and suppuration is the distinguishing character.

Cause.—The cause of kērion is nutritive debility, possibly associated with a strumous diathesis. The remote predisposing causes, in the fourteen cases already mentioned, were as follows: anæmia, rubeola, eczematous diathesis, errors of diet, climate, as illustrated in the transfer of India-born children to England, and the nosophytic diathesis.

Prognosis.—Kērion is slow and chronic in its nature, but yields favourably to the kind of regimen which improves the constitutional powers. When the disease has existed long, the restoration of the hair on the scalled patches must be regarded as hopeless.

Treatment.—Kērion calls for a nutritious and appropriate diet and regimen, and tonic remedies, such as nitro-muriatic acid with the tincture of orange-peel, quinine with sulphuric acid, phosphoric acid with a bitter tincture, chalybeates, and, where a strumous diathesis is suspected, cod-liver oil and the syrup of the iodide of iron. As a special cutaneous tonic, the ferro-arsenical mixture is very valuable in this disease when other indications have been fulfilled. Locally, washing with the juniper-tar soap, together with combing and brushing, must be carefully pursued, and dressing with the juniper-tar ointment, or the unguentum picis liquidæ, or the latter in combination with the unguentum

sulphuris. Where the inflammation runs high and there is much pain, as also where crusts of considerable thickness and breadth have formed, water-dressing must be adopted for awhile, until the inflammation has subsided and the crusts have been removed. In its inflamed and irritable state a solution of nitrate of silver, ten grains to the ounce, is often very useful, and subsequently the dressing of unguentum picis. To remove any induration that may complicate its last stage, the patch may be painted with the compound tincture of iodine. When a soothing application is indicated, we may have recourse to the benzoated ointment of oxide of zinc; and to subdue the desquamation of the surrounding skin, to the diluted nitric oxide of mercury ointment.

Sycosis is an inflammation of the hair-follicles, attacking chiefly the face, but occasionally extending into the borders of the scalp. The inflammation is sometimes marked by redness and desquamation only, and may be termed *erythematous;* sometimes it is *papular* or coniform, sometimes *pustular*, sometimes *tubercular*, and in rare instances, *fungous*. It is to the latter form that the disease owes its name sycosis, from συκον, a fig, because the fungous development of the disease resembles the pulp of that fruit. The disease is also named, from its situation, sycosis menti, maxillaris, capillitii, supercilii, &c., and in the more common seat of its occurrence, namely the roots of the beard, it is distinguished as *mentagra*. It is a disease of the male of adult age, and is very rarely met with in the female.

Sycosis erythematosa is known by a redness, furfuraceous desquamation, and more or less hardness and thickening of the skin. The disease may exist in this state for months without proceeding further, or may accompany or follow the other forms. It is attended with a feeling of heat and pruritus, and sometimes with tingling and smarting, but rarely with any discharge or exudation from the skin. The erythematous form of sycosis is often met with on the eye-

brows and temples, while the rest of the face may be attacked by the more decided follicular forms.

Sycosis papulosa vel coniformis proceeds from vascular congestion of the follicles, which assume a conical figure, and give exit to a hair by the summit of the cone; it occurs chiefly on the chin, at the roots of the whiskers, and upon the upper lip, and is associated with the erythematous and commonly with the pustular form of the disease.

Sycosis pustulosa represents the suppuration of the papule or the substitution for the papule of a conical pustule, filled with a whitish-yellow pus, and transfixed by the hair. The greater or less abundance of the pustules constitutes the chief difference between the papulous and the pustulous variety, and the latter is more or less extensively associated with the erythematous and papulous forms.

Sycosis tuberculosa may be associated with all the three preceding forms, and take the place of a complication of the original disease. Sycosis is always chronic, but the tuberculous character represents a more chronic disposition than any of the rest. The source of the tuberculation is a thickening and infiltration of the skin, sometimes arising from the operation of the erythematous form upon the deeper tissues and afterwards succeeded by the papular and pustular eruption.

Sycosis fungosa or ficosa is more rare; indeed, is very rare in this country, but may be present as a complication of any or all the preceding forms; and in a very severe invasion of the disease, all the pathological forms may be present in the same individual.

Sycosis is essentially chronic in its nature, lasting for many months, often for years, presenting every aggravation of inflammation, giving rise to enlarged lymphatic glands in the neck, sometimes to subcutaneous abscesses, and occasionally to ulceration of the skin and obliteration of the hair papillæ and follicles, so that the part may remain permanently bald and sometimes deeply scarred.

In reference to the situation of sycosis, we have found, in thirty cases, eighteen affected in the chin, six in the upper lip, and four in the maxillary region; while in two instances all these parts were attacked, namely, chin, upper lip, whisker, as well as the eyebrow, and the scalp in the region of the temple. The ages of origin of the disease ranged between eighteen and fifty, one patient being sixty-two; but the age at which the disease is most frequent is that between thirty and forty. The duration of the malady at the beginning of treatment extended from a few months to fifteen years, the greater number of examples being found between two and four years.

Sycosis is a dermophytic disease, presenting the phytiform kind of degeneration already described in connection with other diseases of the follicles, namely, trichosis and favus. This phytiform tissue was first described by Gruby, in 1842, and was named by him mentagrophyton; he regarded it as a parasitic plant, and detected its presence in the hair-follicles, in the substance of the hair, and also in the epidermal cells of the interfollicular portion of the skin. Latterly it has been identified with the trichophyton met with in trichosis.

Diagnosis.—Sycosis may be mistaken for acne, unless its relation to the hair be borne in mind; the thickening and condensation of the skin, the papulation, and the pustulation, are peculiar to this disease. Not so easy is the distinction between a mild form of sycosis and impetigo; in this case we must make ourselves acquainted with the duration of the disease, and its special localization on the hairy parts of the face.

Cause.—The cause of sycosis is debility, chiefly referrible to the assimilative system; next in frequency, to local conditions; thirdly, to the nutritive system, and fourthly, to the nervous system. One of the most common of the remote predisposing causes is cold: the disease is apt to begin in the winter season, and cold may act the part both of a predis-

posing and an exciting cause. Other remote predisposing causes of debility are, the eczematous diathesis, dyspepsia, struma, syphilis, rheumatic diathesis, errors of hygiene, and organic disease. In one case the patient, a young man of nineteen, received a severe chill during very cold weather; the chill was succeeded by catarrh, afterwards by furuncle, and subsequently by sycosis; while repeated instances were found to be referrible to the chilling effects of draughts of cold air in an otherwise heated atmosphere. The disease is not unfrequently intermittent, making its attack in the winter time, and getting well in the summer.

Prognosis.—Sycosis, as we have seen, is very obstinate, but not dangerous to health, and of late, with an improved method of treatment, has become more manageable than heretofore.

Treatment.—The difficulties of treatment of sycosis are proportioned to the difficulty of reaching, with our remedial means, the real seat of the disease, namely, the interior, and often the fundus of the hair-follicle. To effect this object, we must remove the hair by avulsion, and afterwards apply our remedies, the most efficient for this purpose being the bichloride of mercury, either in lotion or in solution in glycerole, the unguentum hydrargyri nitratis, or the unguentum iodidi sulphuris, of the strength of one or two scruples to the ounce.

We must instruct our patient to wash the eruption thoroughly with the juniper-tar soap, and then to pull out, by means of a pair of tweezers, every hair growing on the diseased part; the process is painful and tedious, but it is the only certain means of cure. The hairs should be drawn out singly and by a steady pull; the most diseased spot selected for a beginning, a small space cleared at first, and enlarged at each sitting, until every hair is removed. One of our patients informed us that he had extracted sixteen hundred hairs from his upper lip in three weeks. The hairs surrounded by a pustule at their base come out the most

easily; but fomentation with warm water and washing with the juniper-tar soap diminish the pain of the operation very considerably, and facilitate its accomplishment. After the operation is over for the day, a smear of acetate of lead ointment (gr. v. ad ℥j) adds very much to the comfort of the skin. By insisting on this plan the most obstinate sycosis may be brought into a curable state, and often may be cured in the course of a few weeks.

Where any constitutional disorder is present, that must be corrected by the usual means: by aperients, to regulate the secretions; by tonics, to remove debility; and by appropriate dietetic and hygienic means. Arsenic, and the triple solution of mercury, iodine and arsenic, so useful in many chronic affections of the skin, are impotent in sycosis without the assistance of local treatment.

CHAPTER XXII.

AFFECTIONS OF THE SEBIPAROUS SYSTEM.

THE SEBIPAROUS SYSTEM is a part of the general follicular system of the skin, sharing with the hair-system and the sudoriparous system the follicular apparatus of the entire cutaneous surface. The follicles of the hair-system are provided with sebiparous follicles or glands; but in treating of the diseases of the hairs, we disregard the latter as performing only a secondary office; so, in considering the diseases of the sebiparous system, we do not overlook the connection of the small hairs of the body with the sebaceous apparatus, although we give our attention especially to the latter. In structure, the sebiparous and the hair system have one part in common, namely, the outlet of the follicle, and this is important to be borne in mind.

The diseases of the sebiparous system admit of a primary division, into diseases of structure, and diseases of function. The diseases of structure heretofore observed affect chiefly the epidermal lining of the aperture of the follicle and the epithelial lining of the tubuli of the gland, and are three in number; namely,—

Epidermic hypertrophy,
Epithelial hypertrophy,
Cancroid hypertrophy.

EPIDERMIC HYPERTROPHY is an enlargement of the conical epidermic plug which occupies the mouth of the follicle, an

hypertrophy belonging to the corneous tissue of the epidermis. We have seen this disease only a few times, but once in a well-marked degree, when it appeared as a crop of transparent horny papulæ dispersed over the forearms. The papulæ were larger than those of lichen, and, regarding the disease as a papular hypertrophy of the epidermis of the cutaneous follicle, we termed it *papulæ epidermicæ*. Our treatment of this case was daily ablution with the juniper-tar soap and active friction.

EPITHELIAL HYPERTROPHY affects the deeper-seated lining of the common follicle as well as that of the sebiparous gland, and is apt to spread to the rete mucosum of the interfollicular integument. The morbid tissue is yellow in colour, and deserves the appellation of *yellow hypertrophy of the epithelium*, the tint of yellow varying from a pale cream to a bright golden tint. It presents two principal varieties, *papular* and *laminated*, the former being limited to the apertures of the follicles, the latter spreading from one follicle to another, and producing a plate of considerable extent, sometimes smooth and sometimes granulated. The papular variety which we have termed *papulæ flavæ epithelii cutis*, occurs in the form of papules of considerable size, and may be met with dispersed over any part of the body. The laminated variety, *laminæ flavæ epithelii cutis*, is commonly seen in the integument of the eyelids, and more particularly of the female sex. Dr. Gull has named this latter affection vitiligoidea, and he designates the varieties as vitiligoidea granulosa and vitiligoidea plana. Regarding these formations as a degeneration of structure, dependent on debility and lowered vitality of tissue, the treatment we have to recommend is stimulant and alterative; in the papular form, dispersed upon the limbs, saponaceous ablutions with the juniper-tar soap, followed by friction with the unguentum sulphuris; and in the case of the concentrated form met with on the eyelids, the cautious application of a solution of potassa fusa. In the latter case we have used the compound

tincture of iodine and acetum cantharidis without any good result.

Cancroid hypertrophy, or epithelial cancer, is apt to show itself at the apertures of the follicles, where it assumes the form of a small tubercle, with lobulated and semi-transparent borders and depressed centre. We have transferred the consideration of this form of degeneration of the epithelial tissues to our chapter on carcinomatous affections of the skin, to which, from the nature of its subsequent history, it more especially belongs.

The diseases of function, or diseases of secretion of the sebiparous follicles, present two principal heads, having reference to the *excretion* or *detention* of the sebaceous substance. The excreted sebaceous matter may be in *excess*, or it may be *deficient* in quantity, and it may be *altered* in its qualities. When simply detained in the follicles, the aperture of the follicle may remain *open*, or it may be *closed*, and the contained matter may be more or less altered from its normal condition. Lastly, with altered and commonly torpid secretion, we may have inflammation of the immediately surrounding tissues.

The diseases of excretion are stearrhœa, or excess of secretion; asteotodes, or absence of secretion; and allosteotodes, or alteration of secretion.

Stearrhœa, or seborrhœa, commonly presents itself as a greasy condition of the skin (cutis unctuosa), and is usually met with on the face; there is also associated with this state of secretion a certain degree of vascular congestion and general coarseness of structure of the skin; the apertures of the follicles are enlarged, and the interfollicular integument puffed up like the rind of an orange.

Asteotodes indicates a deficiency or absence of the natural sebaceous secretion, and the skin as a consequence is dry, dirty looking, and roughened by desquamation. This condition of the secreting function is sometimes met with in elderly persons or those who have been exposed to extremes

of climate or vicissitudes of weather, as in sea voyages. When a certain portion of sebaceous substance is excreted by the follicles, it is apt to concrete upon the skin, and form dry, dirty, closely-adherent laminæ, and excite some irritation of the surrounding skin; and if these laminated concretions be removed, the cuticle is apt to be torn and the skin to bleed; and if neglected, the excoriations may degenerate into an unhealthy secreting surface. An accumulation of these laminæ, with specks of concretion on the face, has been termed ichthyosis, or more properly sauriderma, sebaceum. They are commonly associated with a general sordid condition of the skin.

Allosteotodes, or alteration of sebaceous secretion, is commonly marked by alteration of colour and density of the secretion. In one case it may be yellow and abundant in quantity, *stearrhœa flavescens;* in another also abundant, but charged with pigment, and almost black, *stearrhœa nigricans;* while in a third the pigment may present a bluish or a greenish tint, the former of these states constituting *stearrhœa cærulea.* Alteration of density we have already considered in those laminated and squamous concretions on the epidermis, which have been named sebaceous or false ichthyosis or sauriderma.

Stearrhœa flavescens may be developed on the face or on the scalp; on the former it is mostly seen upon the nose and neighbouring part of the cheek. The secretion is sometimes so soft as to be easily removed with a napkin, but it is apt to form again in the course of a few hours. It is of a variable tint of yellow, sometimes as bright as gold, and on the scalp is apt to concrete into a layer of considerable thickness, producing much pruritus, and sometimes, by the extension of the irritation into the follicles, contributing to the fall of the hair.

Stearrhœa nigricans is a remarkable form of allosteotodes, and consists in an excess of sebaceous secretion of a diffluent character, and more or less abundantly charged

with pigment granules. It would seem to be of nervous origin like other forms of melasma, occurs for the most part in young women, and is commonly associated with hysteric affection. Occasionally it has been observed to be produced under the influence of mental emotion, and is sometimes periodic, making its appearance from time to time, and even occurring at a particular hour of the day. Not unfrequently these cases have been accompanied with vomiting, and the appearance of black matter in the fluids raised from the stomach, and also in the fæcal discharges and in the urine. Most of the recorded cases of this disease, and those that have fallen under our notice, have occurred upon the face, and particularly the eyelids, and have been associated with that very peculiar affection of the eyeball and of the eyelids, first described by ourselves under the name of melasma oculi.

An instance of this remarkable affection was published in the "Philosophical Transactions," by Mr. Yonge, upwards of one hundred years ago, and is so illustrative of the nature of the complaint, that we have ventured to quote it here. "A girl sixteen years old, a daughter of Mrs. Elizabeth Worth, of Plymouth, about the end of April, 1709, had a few hot pimples rise on her cheeks, which bleeding and a purge or two cured. She continued very well till about a month afterwards, when her face, so far as is usually covered with a vizard mask, suddenly turned black, like that of a negro. This surprising accident much frightened her, especially after some foolish people persuaded her she was bewitched, and never to be cured. By prayers, exorcisms, &c., which they used in order to relieve the fascination, they increased the passion and terror of mind to a great degree, even to distraction, and then desired my assistance. By the arguments which I used, and some composing anti-hysterical remedies, the violence of her fits became much pacified. I directed a lotion for her face, which took off the discoloration, yet it returned frequently, but with no regularity, sometimes twice or thrice in twenty-four hours, sometimes five or six

times. It appears insensibly, without pain, sickness, or any symptoms of its approach, except a little warm flushing just before it appears. It easily comes away, and leaves the skin clear and white, but smuts the cloth that wipes it from the face; it feels unctuous, and seems like grease and soot or blacking mixed. It has no taste at all. She never had the menses; is thin but healthful; the blackness appears nowhere but in the prominent part of her face. There are a thousand eye-witnesses to the truth of this uncommon case. The anomalar blackness of the girl's face is now (November) divided into a few dark cloudy specks, which appear but seldom, and nothing so livid as formerly."

Stearrhœa cærulea is a rarer disease than the preceding forms of morbid alteration of colour of the sebaceous secretion, and is due to a blue tinge of the normal pigment of the skin. In other respects it corresponds in every way with stearrhœa nigricans, and, like the latter, must be regarded as a neurosis.

Treatment.—All the forms of aberration of sebaceous secretion poured out upon the skin, or deficient in quantity, may be regarded as depending upon want of tone or vitality of the glandular apparatus, combined with more or less irritability of tissue of the skin. Hence the treatment should, in principle, be alike in all: stimulation, by means of saponaceous ablutions, and especially with the juniper-tar soap, and the subsequent use of stimulating unguents or lotions.

In the different forms of stearrhœa the skin should be well washed with soap and afterwards bathed with a weak solution of the bichloride of mercury, of the strength of one grain to the ounce. In stearrhœa of the scalp, united as it generally is with concretion and desiccation of the sebaceous matter, the saponaceous ablutions should be followed by an ointment of the nitric oxide of mercury, diluted in the proportion of one part to three, and with abundant brushing and combing.

The asteotodic forms may be similarly treated, the saponaceous ablutions being followed by the diluted nitric oxide of mercury ointment or by glycerole,* either simple or containing the bichloride of mercury in the proportion of four to six grains to the ounce.

Stearrhœa nigricans is a disease of deeper-seated origin than the skin, depending, like other forms of melasma, upon derangement of the nervous system, and morbid sympathy with the great abdominal ganglia and plexuses of the organic system of nerves. It therefore, as well as stearrhœa cærulea, demands a constitutional as well as local treatment, a treatment conformable to the suspected cause of the disturbance, such as hysteria or deranged menstruation, or a treatment founded on the expectant principle. We refer the student for a further elucidation of this subject to the chapter devoted to chromatogenous affections.

The diseases of detention of the sebaceous substance are due either to deficiency of expulsory power in the follicles and ducts of the sebiparous glands or to condensation of the secretion, which renders the expulsory power nugatory; or to the absence of excretory opening to the follicle. The diseases belonging to this group are as follows :—

Comedones,
Tumores sebipari,
Tumores encystici,
Tubercula sebipara.

Comedones are the accumulations of sebaceous matter so commonly met with in the follicles of the face of persons whose skin is naturally languid and torpid in action and function. The accumulation appears at the surface of the skin as a black point or spot occupying the aperture of a

* Glycerole is made by dissolving one drachm of starch in an ounce of glycerine, with a moderate heat; the resulting compound is a transparent jelly, less diffluent than glycerine, and very convenient of application to surfaces requiring a moistening medium.

follicle, and if the skin be squeezed, the accumulated material may be pressed out of the follicular tube, when it will be found to be cylindrical in shape, of a white colour, excepting at the extremity which had been exposed to the atmosphere, and very much resembling in shape a *grub* or maggot, with a black head. These accumulations are not confined to the face, but are met with on every part of the skin supplied with follicles, being most abundant where the follicles are richest in sebaceous substance. Hence they are common in the coarse skin of the back, and in the sternal hollow of the front of the chest, and are commonly associated with acne, to which they often stand in the relation of cause.

It must be remembered that the excreted matter of the follicles of the skin is composed of four principal elements, namely, water, oil, albumen, and horn; in the sebum, or sebaceous substance, the water, oil, and albumen, form a kind of emulsion inspissated with the denser material of the cells, while in the upper part of the common follicle of the sebiparous gland and hair, the cells have undergone a horny transformation. Now the *plus* or the *minus* of these four elements will necessarily alter the secretion very materially, and also alter its destiny. If it be moist it will flow freely, possibly in excess, as in stearrhœa; if, on the other hand, it be dry, it will be retained in the follicle, and if long retained, the oily and aqueous portion may become absorbed and only the denser albuminous and the horny matter remain.

When the excreted substance of the follicles has been long held in detention, another element will be found in its composition, namely, minute hairs. In a mass of this substance, of no great bulk, we have counted as many as ten or twenty hairs, which have grown to their full length and have been cast in succession, to give place to a further growth. And when the follicular matter is abundant and rich in oil and albumen, we may discover another object in the midst of its mass, a living animalcule, the *steatozoon*

folliculorum. As many as ten or twelve of these creatures are sometimes met with, feeding on the contents of the follicle, and they may be seen in every stage of development, ova, spade-shaped embryos, and perfect animals. Their habitat is the upper part of the follicle, and their heads are directed inwards, as though they had made their way from without. These follicular entozoa give rise to no irritation of the follicle, nor are they the cause of disease; on the contrary, they aid the restoration of the skin to health by disintegrating the accumulated mass, and thus facilitating its expulsion.

In certain cases of comedo the albuminous and the horny element of the follicular substance are in excess, and the little cylinder already described dries up into a hard and tough spine. We have seen a cluster of these spinous comedones, amounting to twenty or thirty in number, and having the appearance of bristles growing out of the skin.

Treatment.—Retention of secretion in all its forms, where there exists no organic impediment to the issue of the accumulated substance, will be benefited, and in most instances cured, by the wholesome use of soap, friction, and cold water. An honest ablution is food, air, and exercise to the skin, and a necessity of its healthful condition. Where comedo is firmly established we may aid the operation of ablution by stimulating pomades, such as the compound hypochloride of sulphur ointment. But we must caution the student against bringing together sulphur and mercury, or mercury and lead; otherwise he will very much increase the apparent evil, the accumulation of black spots.

Tumores sebipari. — The accumulation of sebaceous matter is sometimes confined exclusively to the ducts of the sebiparous gland; they are distended throughout, from their primary to their ultimate branches, and the gland is forced upwards above the level of the skin, in the form of a small currant-shaped tumour. The little tumour resembles a currant in size as well as in form, is globular in shape,

indented on the summit at the point where the dried sebaceous substance appears in the aperture of the distended excretory duct, lobulated on the sides in conformity with the arrangement of the lobules of the gland, semi-transparent from distension of the super-imposed stratum of the corium, and slightly constricted at the base.

These little sebiparous tumours are commonly called *molluscum*, with the adjectives simplex, sessile, subglobulosum, parvum, pisiforme, and contagiosum, and have given rise to some controversy as to their supposed contagious qualities. Like impetigo phlyctenodes and trichosis, they are apt to attack a whole family of children, and sometimes the adults of the same family. We hold to the non-contagious side of the question, and believe in their endemic and epidemic nature, rather than the capability of their communication by contact. They are commonly met with in children and families of a strumous diathesis, and are usually seen developed on the face and neck, and especially in the neighbourhood of the eyelids.

In some instances they seem to be produced by the stimulus of friction acting on a languid and torpid skin, and in this case may be developed on the trunk of the body. A gentleman lately presented himself for our counsel, upon whose chest and abdomen there were forty or fifty of these small tumours, dependent for their exciting cause on the friction accompanying the process of shampooing.

Treatment. — Our observations on the importance of ablution with a mildly-stimulating soap, such as that of the juniper-tar, must not be overlooked in sebiparous molluscum. The little tumours may be destroyed by the cautious application of a solution of potassa fusa (partes æquales), but the saponaceous ablution will tend to the restoration of the healthy tone of the skin. Where the tumours are dispersed and numerous, and especially when they are distributed over the trunk of the body, a lotion of the bichloride of mercury in almond emulsion will be found particularly

useful. When the general health is faulty we must have recourse to a nutritious diet and regimen, with bitter and chalybeate tonics; and in case of a suspected strumous diathesis, to the syrup of the iodide of iron and cod-liver oil.

Tumores encystici.—With accumulation of sebaceous substance there exists not unfrequently a hypertrophic action in the coats of the follicle; the containing and the contained participate in a mutual growth, and the growth may be said to be almost unlimited. The gland is obliterated in the early stage of the disease by the pressure of the accumulated mass, and the secretion which follows must be regarded as the product of the dilated follicle, now converted into a sac or cyst, rather than of the gland itself.

These encysted tumours are divisible into two groups, one in which the aperture of the follicle remains *open*, and which is a mere magnified comedo, and another, the true encysted tumour, which is a *closed* sac. The encysted tumour with open aperture enlarges horizontally more than vertically, and forms an oval-shaped and flattened mass, that is more perceptible to the touch than to the eye, while through its aperture, which is sometimes almost closed and sometimes considerably dilated, its impacted contents may be reached by means of a probe. The contents of this form of tumour are condensed and solid, forming a mass that is laminated in texture, and made up of epidermic scales, which are glistening in appearance and horny in texture, and the product of the internal surface of the cyst. These tumours are commonly met with in the thick skin of the trunk of the body, and especially on the shoulders, and they vary in dimensions from half an inch to two inches in diameter.

In the compact form of the included mass the pressure of the cyst is uniform in all directions, and as the accumulation bears so large a proportion in size to the outlet of the sac, there is no tendency to its expulsion, but occasionally the accumulated matter becomes softened, possibly in conse-

quence of inflammation of the cyst, and then a portion of the contents may be forced through the opening. In contact with the air the exposed matter dries into a hard mass, and by successive extrusions the hardened mass is lengthened, until it assumes the form and characters of a horn. It is hard, semi-transparent, laminated, and in composition as well as in appearance is horny in its nature.

We have already shown that comedones may be converted into horny bristles projecting from the follicles of the skin, and we are now describing the manner in which horny bodies of larger growth, the so-called *cornua humana*, are produced. We shall have occasion to recur to the subject again.

True encysted tumours, or tumours with a *closed* cyst, are, with the exception just named, identical in structure with the preceding. They occur most frequently in the scalp, but are met with also on the trunk of the body. They are globular in form, prominent, resembling marbles under the skin; hard at first, but at a later period, when their contents are broken up, soft and tense. They vary in size, from that of a pea to a marble, and sometimes acquire the dimensions of a small orange. Not unfrequently there are two or three, and occasionally as many as ten or twenty on the head; and the tendency to their formation would appear to be sometimes hereditary. When they have been a long time in existence they cause, by their pressure, the obliteration of the hair-follicles, and the skin covering them becomes bald.

In their early stage encysted tumours are hard, from the compact nature of their contents; but when they have grown to a considerable size, or when the cyst has been inflamed, their contents are apt to become softened and altered in quality, sometimes quite fluid, and often fœtid. Hence, according to the nature of their contents, they have received the name of *atheroma* when filled with a substance like pap or bread sauce; *meliceris*, when the contents resemble a

semi-fluid wax, and *steatoma* when the fatty element of the sebaceous substance predominates. Occasionally they are filled with an albuminous fluid containing crystals of stearine, and sometimes, amidst their softened contents, are found a considerable number of hairs.

The outer layer of the accumulation of the encysted tumours forms a boundary to the mass, and at the same time takes the place of an epithelium to the cyst; it is commonly dense and horny in its texture, while the cyst is remarkable for its tenuity. The operation for the removal of the tumour turns upon this point of structure; the cyst should be punctured; the horny epithelium should be seized with the forceps, and held firm, while the thin cellular tissue which holds the cyst in its place should be pressed back until the horny layer with the attenuated cyst is liberated from its attachment, and comes out as an unbroken shell, representing the precise form of the cyst, and enclosing the morbid matter of the tumour.

We have shown, in preceding paragraphs, that the substance of the comedo and the accumulations of the open encysted tumour are in part horny in their nature, and that when exposed to the atmosphere they dry up into a hard mass, scarcely distinguishable from horn, and so give rise to the so-called cornua humana. We must now apply the same reasoning to the true encysted tumours. The cysts of these tumours and the skin covering them are apt to become inflamed; the latter ulcerates, and the follicular substance is exposed; it dries up into a horny mass, and fresh portions are from time to time extruded, as they accumulate by fresh secretion at the base, until we have produced those extraordinary growths that resemble a ram's horn in shape, and are several inches in length.

Treatment.—The treatment of encysted tumours is simply local, and consists in the removal of the contents of the cysts and the destruction of the thin membrane which constitutes the cyst, and which is incorporated with its epithelial layer.

In the case of encysted tumour with open mouth the latter may be dilated or enlarged by incision, the accumulation may be removed, and the surface of the cyst pencilled with a solution of potassa fusa (partes æquales) or rubbed with the solid nitrate of silver. The encysted tumour without aperture, or true encysted tumour, requires to be incised to an extent corresponding with the breadth of the tumour. The incision brings into view the contents of the cyst, and with them the firm, horny, capsule-like outer layer which is adherent to the surface of the cyst. This horny layer should be seized and held firmly with the forceps, and the vascular tissues pressed back with the handle of the scalpel, until the shell is drawn out entire and unbroken. The tearing away of the horny layer is a sufficient stimulant of the cyst, and no other treatment is required; the blood that fills up the vacuity after the mass is withdrawn should be left to coagulate and cement the edges of the incision, and serve the purpose of an adhesive bond.

Horny growths are to be softened with water-dressing or poultice, and then removed; painting the surface of the cyst with the strong potash solution, or rubbing it with nitrate of silver.

Sebaceous tubercles.—There is another form of enlargement connected with the secretion of the sebiparous follicle which is not an affection of the gland like the sebiparous tumour, but a mere accumulation of the cellular element of the sebaceous secretion in the upper stratum of the corium, and possibly one of the ramifications of the gland, but without any opening communicating with the exterior. It is not unlikely that in its origin it may be an aborted follicle. The accumulation is small in quantity, pearl-like in whiteness, hence its synonym *pearly tubercle*, round in its figure, prominent, and of about the size of a millet-seed; hence the terms *grutum* and *milium* assigned to it by Plenck, and *miliary tubercles* by ourselves.

The sebaceous miliary tubercle is commonly met with in

clusters on the face of young persons, and most frequently upon the eyelids. We have sometimes seen instances in which the face was disfigured by the small tubercles, sprinkled by hundreds through the skin.

Occasionally examples occur in which calcareous matter, phosphate and carbonate of lime, are deposited in the epithelial cells composing this accumulation, and the tubercles become entitled to the denomination of *calcareous miliary tubercles.*

Other forms of follicular tubercle are occasionally met with on the edges of the eyelids, of which the contents are a serous fluid, forming a *serous cyst,* which, depending from the upper eyelid, may become an obstacle to vision. Sometimes they are as small as the millet-seed, and sometimes enlarge to the size of a grape. Another of these serous sacs is remarkable for the transparency and extreme toughness of its cyst, and, from some fancied resemblance, has been termed *grando,* or hailstone, and also CHALAZION.

TREATMENT.—In sebaceous tubercles the principle of treatment is to induce healthy action in the skin by moderate local stimulants, such as the juniper-tar soap and the bichloride of mercury lotion in emulsion of bitter almonds, and to release the accumulations in the cysts by puncture. The pearly tubercles on the face may be punctured, and the contents squeezed out; so also may the calcareous and the serous cysts; and where they have attained a size of any importance, the cavity of the cyst may be touched with a point of nitrate of silver.

ACNE.

DETENTION OF SEBACEOUS SECRETION within the follicle, occurring in the languid and torpid skin of young persons, is apt to act as an irritant, and give rise to congestion and inflammation of the skin immediately surrounding it; this is the disease which is termed *acne,* probably from the word

acme, signifying the height of the disorder, and also *varus*, from the deformity which it commonly occasions.

Acne has received several specific names having reference to its ordinary periods. In its earliest stage, when only a slight elevation without redness, but hard to the touch and dotted in the centre with the black point of a comedo, it is termed *acne punctata;* when the progress of congestion and inflammation has raised the slight prominence into a well-marked conical pimple of a red colour, the term *acne coniformis* becomes applicable; in a third stage the summit of the cone is converted into a well-marked pustule, *acne pustulosa;* in a fourth, pustulation is imperfect, and the skin becomes tuberculated by thickening and infiltration of its tissue; this is *acne tuberculata;* while in a fifth, the skin is indurated and deeply scarred, *acne indurata.* Sometimes the whole of these forms are present in the same person, but more frequently the punctated, the coniform, and the pustular form are united, while the tubercular and the indurated form constitute a chronic stage of the disease. In the two latter the skin becomes purple, and often livid, and the disease is accompanied with small cutaneous abscesses.

The relative frequency of the four principal forms of acne, as shown in the analysis of one hundred cases, gives, for acne coniformis, the number sixty-five; twenty-five for acne punctata; six, for acne tuberculata, and four for acne pustulosa. Of these one hundred cases, sixty were females and forty males, showing a greater prevalence of the disease in the former than in the latter sex.

The situations in which acne is met with are, the face, and particularly the forehead and cheeks; the back, from the shoulders to the hips, and the front of the chest, especially the sternal groove. In the one hundred cases already mentioned, the eruption was developed on the face chiefly in seventy-eight; on the back and face in fifteen, and on the chest in seven.

The ages of the patients ranged between ten years and

thirty, the latter age being exceeded in three instances only. Between ten and fifteen the number was twenty-eight, more than a quarter of the whole; between fifteen and twenty it was forty-eight, or very nearly one half of the whole; while the remaining twenty-one, somewhat less than a quarter, fell between twenty and thirty years of age. The chronic and slow nature of the disease is shown by the duration, estimated at the time of application for treatment. In this particular, the disease had lasted between one year and five years in more than one-half, namely, fifty-eight; while in twenty-three, nearly one quarter, it had endured between five years and ten. Nine of the cases had been in existence between ten years and fifteen, while two exceeded the latter period.

Diagnosis.—Acne is a disease of the follicles, a disease of inflammation, accompanied with accumulation of sebaceous substance, a disease of youth, and a disease of chronic duration. In these respects it is distinct from every other form of eruption, and not to be confounded with gutta rosacea, called in error acne rosacea, which is a disease of mature life, chiefly confined to women; and although attacking the follicles of the face, not dependent on accumulation of sebaceous secretion.

Cause.—Acne is essentially a disease of debility, and especially of nutritive debility. In one hundred cases we found only two that we could designate as dependent on assimilative debility, and one only on nervous debility. The remote predisposing causes occurring in these one hundred cases were as follows: rapid and over-growth, twenty-five; congenital weakness, twelve; anæmia, eleven; deficient and improper diet, seven; errors of air, exercise, and general hygiene, six; and under five each, the following: nervous debility, mental application and study, scarlatina, fever, deranged menstruation, eczematous diathesis, rubeola, dyspepsia, rheumatism, chill, syphilis, variola, vaccination, strumous diathesis, hæmorrhage, abscess, depressing climate, and climate of India.

Prognosis.—Although chronic, acne is perfectly curable, the tendency of age is to induce spontaneous cure, but cure may be greatly facilitated by medical means, as may be inferred from the examination of the long list of depressing influences involved in the remote predisposing causes.

Treatment.—The treatment of acne is indicated by the nature of its predisposing causes, both proximate and remote. The diet of the patient must be nutritious and generous; the regimen, in reference to air, exercise, and amusement, must be equally liberal, and we must aid the weakened energies of the vital powers by suitable tonics; in one series of cases by bitters and mineral acids, and in another by chalybeates. But when the functions of digestion and secretion are properly performed, and the indication is special and not general, and betokens debility of nutritive power rather than faulty assimilation, we may have recourse to the ferro-arsenical mixture, in doses containing two or three minims of Fowler's solution, three times a day.

The local treatment must have for its object to restore power to a weakened tissue, and renovate a languid and torpid condition of the skin. The best remedy for this purpose is the compound hypochloride of sulphur ointment, which should be rubbed into the eruption at bedtime, and washed off in the morning with soap and cold water. Another valuable remedy applicable to acne is the bichloride of mercury in solution in spirits of wine, or in an emulsion of bitter almonds, in the proportion of one or two grains to the ounce. This solution may be dabbed on the eruption night and morning, after ablution with soap and moderate friction with a towel.

CHAPTER XXIII.

AFFECTIONS OF THE SUDORIPAROUS SYSTEM.

THE SUDORIPAROUS SYSTEM represents the aqueous element of the follicular secretion of the skin, as does the hair system the corneous element, and the sebiparous system the oily element. The disorders of the sudoriparous system are manifested by derangement of its peculiar secretion: the secretion may be *augmented* beyond the normal bound, it may be *diminished*, or it may be *altered* in its physical and chemical qualities; and the disorders resulting from these aberrations may be enumerated as follows:

Idrosis,	Chromidrosis,
Anidrosis,	Hæmidrosis.
Osmidrosis,	

IDROSIS, also termed ephidrosis, hyperidrosis, and sudatoria, is an augmentation in quantity of the perspiratory secretion, accompanied with some degree of vascular congestion of the skin, by a sense of heat, tingling, or itching, and sometimes by pricking and lancinating pains. When of accidental origin and slight in its nature, it is termed idrosis, or sudatoria simplex; but when it prevails as an epidemic or contagious disorder, as did the sweating sickness of the sixteenth century, it is distinguished as idrosis vel sudatoria maligna.

IDROSIS SIMPLEX is apt to prevail in the summer time or as a clinical affection excited by the heat of bed-coverings

and heat of apartment in the winter as well as in the summer season. The perspiration is most abundant on those parts of the body which are rich in follicular glands, for example, the head and face, the armpits, the perineum and groins, the palms and soles, and certain regions of the trunk; and on the more sensitive skin of the sides of the body, the inner side of the arms and thighs, and the front of the abdomen and chest, is apt to be accompanied with an eruption of miliary vesicles, or sudamina, constituting the form of idrosis known as *sudatoria miliaris.*

The fits of perspiration are sometimes preceded by a feeling of chilliness of surface and sometimes by a flush of heat, the coldness succeeding the flow of the secretion; and are repeated once or twice in the twenty-four hours, sometimes oftener, and chiefly in the night season. They are frequently accompanied with a sensation of faintness and sinking at the epigastrium, sometimes with nausea and derangement of the digestive functions, and sometimes with feverishness.

When idrosis occurs as an acute affection it terminates in one or two weeks, or, if it be associated with any form of illness which tends to maintain an unnaturally heated state of the skin, it may continue for a longer period. It has been known to exist for years, and in the latter form, *ephidrosi schronica,* is unaccompanied with miliary vesicles.

Idrosis simplex is met with more frequently as a partial affection, *ephidrosis partialis,* confined to some one region of the body, as the hands and feet, the axillæ, or perineum. Sometimes active perspiration prevails on one side of the body and not on the other; for example, on one side of the face or chest. We have recorded the case of a celebrated actor who perspired freely on one side of the face and on the opposite side of the body, and nowhere else.

As idrosis represents a morbid excess of perspiration, it may be anticipated that other qualities of the secreted fluid are altered in their nature: these excessive perspirations

have commonly an acid and offensive odour, and are extremely annoying to the sufferers.

Chronic idrosis is most frequent in the hands and feet. In a young lady of nervous temperament we have seen the hollow of the palm fill with secretion and drip between the fingers while we have been speaking to her. And sometimes the disease is hereditary, as in a gentleman whose mother is similarly affected; it began in his case at the age of nine, and has lasted fifteen years; he has two brothers and two sisters; the brothers are similarly troubled, but the sisters have escaped. The secretion is constant in this case, and the cuticle of the palms and palmar surface of the fingers is thick and sodden. In another gentleman the hands have a bright red tint, as though they were stained, and the perspiratory ducts and glands may be seen through the cuticle as vascular points. In the first-mentioned case the palms of the hands only are affected; in the second, the palms and the soles; while in a third the soles alone are the seat of the disorder. The latter gentleman is twenty-one; the disease has existed for two years, and is worst in the summer time. The soles are burning hot and red, and so tender as to make walking extremely painful.

Idrosis maligna.—A form of fever accompanied with profuse and continued perspirations, is described by several French physicians as having been met with in France of late years, and in one instance at the conclusion of an epidemic of typhus. It is accompanied with intense exhaustion and prostration, and with severe congestion of some part of the mucous membrane or of the nervous centres; it is infectious and contagious, and sometimes fatal in the course of twenty-four or forty-eight hours; at other times the fever and the profuse sweatings are prolonged for several weeks.

Treatment.—Idrosis must be regarded as a disease of debility, especially of nervous debility, and treated upon those general principles that are applicable to a similar state, irrespective of the local affection; for example, nutritious

and generous diet, and tonic remedies, particularly sulphuric acid in combination with quinine or cinchona, or the citrate of iron and quinine. In chronic cases we have had recourse to the ferro-arsenical mixture with much advantage.

Locally, the skin should be washed with the juniper-tar soap, and sponged from time to time with a lotion containing one part of liquor ammoniæ to three of water. In idrosis of the hands and feet an ointment of equal parts of unguentum picis liquidæ and unguentum sulphuris is of much service, with constant ablutions with the juniper-tar soap. The use of a strong solution of sulphate of alumina and chloride of sodium has been found useful in some instances, as also have a solution of tannic acid and a solution of acetate of alumina. We have also applied, with considerable benefit, a liquid paste of precipitated chalk.

Dr. Druitt has lately drawn attention to the fact that a part of the body bathed or sponged with water as hot as it can be borne, say for sponging 130°, and so treated until the skin tingles with the heat, will remain for some hours afterwards hot, dry, and unperspiring. And he suggests this application in cases of excessive perspiration, whether induced by the heat of the weather or by pathological causes, as in partial perspirations, or resulting from organic disease, as in the night sweats of phthisis. Cold bathing, he observes, is followed by warmth and a speedy return of the perspiration; tepid sponging is succeeded by a sense of clamminess and chill, and warm spongings increase the perspiration. To produce the desired effect the water must be hot, almost to scalding.

Anidrosis, or simple deficiency of perspiratory secretion, may depend on torpor, or defective nutrition or innervation of the sudoriparous glands, and the glands may, after a time, dwindle into a state of atrophy. Sometimes it is congenital from defective development of the glandular organs. The remedy for this evil is moderate stimulation of the skin, by frictions, by the use of the juniper-tar soap, by the habitual

use of the cold affusion bath on first rising in the morning, and by daily muscular exercise. The disorder is not simply an inconvenience, but it destroys the balance of excretion, and more labour is thrown upon the mucous membrane and the kidneys than they are competent to bear. We cannot always expect the happy results which are figured in the "Philosophical Transactions," of a certain "gentleman near Leyden, who, being much addicted to the study of astronomy, and spending very many nights in star-gazing, had, by the nocturnal wet and cold temper of the air, in such manner obstructed the pores of the skin, that little or nothing exhaled from his body, which appeared hence, because that the shirt he had worn five or six weeks was then as white as if he had worn the same but one day."

Osmidrosis, the ephidrosis olens of Mason Good, indicates an altered chemical condition of the perspiration, and is sometimes a serious affliction to those who suffer from its effects, as it spares neither sex nor rank; and we have seen it developed in young women of much beauty and otherwise of considerable attractions. The more prominent of the offensive odours are, acid, ammoniacal, sulphurous, garlicky, and musky. The acid smell is generated by acetic, lactic, or butyric acid, in the latter case communicating an odour of rancid butter, and sometimes of rotten straw. The sulphurous, the ammoniacal, and the garlicky odours are equally disagreeable, and not less so a dry perfume of faded musk. These annoyances are sometimes so great, that an entire apartment may be made impure by a single individual; and their existence has been made a disqualification for the public service; hence persons wishing to escape admission into the army or navy have simulated this disorder by rubbing their armpits with the animal oil of dippel, with asafœtida, decayed cheese, putrid fish, &c.

Assuming that this annoying affection arises from some error of secretion, induced by lowered vitality of the system or deranged organic functions, the aim of treatment should

be to restore strength and health by every available means. When no other indication presents itself, the ferro-arsenical mixture may be of service, by invigorating the nutrition of the skin. We have administered the bisulphide of soda with the view of setting up a catalytic action, and we have thought with good results. The local treatment applicable to this disorder is frequent ablution with the juniper-tar soap, and inunctions with creosote ointment, together with neutralizing remedies, such as a solution of chlorine or of the permanganate of potash.

Chromidrosis, or coloured sweat, the ephidrosis discolor of Mason Good, originates, like osmidrosis, in some chemical alteration of the perspiratory fluid, or in the development in the system of some colouring principle which is eliminated by the skin. Cases of black perspirations have been frequently recorded; and possibly the disease described in the preceding chapter under the name of stearrhœa nigricans, may by some be taken as an example of this affection. Blue perspirations have also been noticed, and have been regarded as resulting from the presence in the perspiratory secretion of prussian blue. Green perspiration was seen in the case of a young lady who had accidentally taken copper with her food; and yellow perspiration, possibly deriving its pigment from the biliary secretion, has also been noted.

The treatment of these cases must be similar in principle to that already indicated for osmidrosis.

Hæmidrosis, the ephidrosis cruenta of Mason Good, the bloody sweat of the ancient writers, is not without numerous examples. The colour of the secretion is evidently derived from the blood, and in some instances the blood corpuscles themselves have found their way through the skin. We have seen several examples of effusions of blood from the unbroken skin, vicarious with amenorrhœa, in hysterical young women; and once we saw an infant bleed to death by the palms of the hands and fingers, without any existing abrasion of surface. Instances are also recorded in which

the blood has suddenly welled through the skin under the influence of intense moral affections.

The treatment of hæmidrosis must be regulated by the nature of the cause. Deranged menstruation or hysteria will demand a specific method of management, so also will the hæmorrhagic diathesis, if the bleedings be regarded as having relation to such a cause.

CHAPTER XXIV.

TRAUMATIC AFFECTIONS.

TRAUMATIC AFFECTIONS of the skin are such as result from the presence of parasitic animals, *upon*, *in*, and *under* the skin, and the effects of excessive heat and cold. The parasitic animals which attack the human skin are the pediculus, pulex, cimex, acarus, and filaria medinensis. The pediculus, pulex, and cimex confine their predatory invasions to the surface of the cuticle; the acarus burrows within the cuticle, and there obtains its food and deposits its ova; but the filaria goes deeper, and occupies the subcutaneous tissues.

The evil or disease caused by the presence of parasitic animals on the skin has been termed *malis* and maliasmus; and that occasioned by heat and cold, *ambustio* and *gelatio;* these, therefore, are the three disorders which we include under the head of traumatic affections.

MALIS vel MALIASMUS.

Malis is divided into varieties, according to the kind of parasite which infests the cutaneous surface of the skin; for example, malis pediculi, malis pulicis, malis cimicis, malis acari, and malis filariæ.

Malis pediculi, also named morbus pedicularis and phtheiriasis, is the disorder resulting from the presence of the pediculus on the skin; and the pediculus is of three kinds: pediculus capitis, pediculus corporis, and pediculus pubis.

The *pediculus capitis* is found on the scalp, and chiefly in children, or in weakly persons at any period of life, but is not inconsistent with a state of health. The creature seems to feed on the exuviæ of the follicles, and probably pierces the cuticle to reach the juices of the skin, but evidently prefers the humours of children and weakly persons to those of adults or of the healthy, leading to the inference that a morbid state of the system is that which is most acceptable to its tastes. It multiplies rapidly, its increase in numbers being favoured by rest, or rather by neglect; and it agglutinates its ova, popularly termed *nits*, upon the hair, in great quantity. Its presence and movements on the skin excite tickling and itching, and the action of the nails employed to relieve these sensations is apt to cause abrasion and exudation, and favour the conditions that promote the increase of numbers of the parasite.

As the pediculus is very prolific, and as its multiplication is favoured by neglect, by the accumulation of sordes among the roots of the hair, and by a morbid state of the scalp, it is more than probable that the insects, in search of food, burrow into any hollows or vacuities that may occur on the surface of the skin. Hence they are occasionally found accumulated in the open sacs of encysted tumours; and such an occurrence has doubtless suggested the idea that they sometimes breed in the skin, and have been found in small tumours of the skin when they have been opened. This, however, is an error against physiology, for, as air-breathers, they are incapable of existence under the skin, and when they have been found in encysted tumours, must have reached that situation through an external opening.

The *pediculus corporis* is larger than the pediculus capitis; it is also whiter, flatter, and longer; and it deposits its ova in agglomerated masses among the clothes of the person. It is rarely found amongst the hair, like the pediculus capitis, and prefers the smooth parts of the body, to which it adheres firmly. Like other kinds of pediculi, it multiplies rapidly,

and its increase is favoured by neglect of cleanliness and by an unhealthy and ascescent state of the secretions of the skin. It is met with not uncommonly in prisons and workhouses, and occasionally on persons who are very particular in their habits of cleanliness.

In the latter case it is that the infliction deserves the title of a disease, and the designation by a particular name, such as phtheiriasis. We are occasionally consulted in this matter, and the conviction is forced upon us that certain persons are especially susceptible of this disorder. In some instances we have been able to trace it to a cause of contagion, but in other instances have failed in discovering any other explanation than that of a tendency on the part of the sufferer. A married lady at present under our care has several times been the subject of this complaint, in spite of every precaution that she could adopt: she has been careful in associations; careful as to the change of clothing; careful in her ablutions; and has even changed her residence; but is everywhere followed by the same disagreeable affection.

The *pediculus pubis* is almost square in shape, flat, and of a reddish-brown colour; it has enormous legs, enlarging towards the extremity, like the claw of a lobster or crab; and from a supposed resemblance to the latter, has been named the crab-louse; it is also termed, from its flatness, plactula, petala, and pessolata, while others of its synonyms are, morpio, and, from the teasing itching which it occasions, pediculus ferox. It adheres to the hair by means of its strong claws with great tenacity, and lies so flat against the skin as to seem almost buried in its surface. Its chief habitat is the mons veneris; but it is also met with on all the hairy parts of the body, with the exception of the scalp; as in the axillæ, in the eyebrows and beard, and at the roots of the cilia along the edges of the eyelids. It agglutinates its ova to the shaft of the hair like the pediculus capitis.

The pediculus pubis gives rise to great irritation of the parts which it infests, and when the insects are abundant,

the irritation is communicated to the greater part of the surface of the body, producing, in fact, a pruriginous lichen. And the lichenous eruption is more or less complicated, like prurigo, with abrasions and scratches caused by the nails.

Treatment.—The best destroyers of pediculi are the mercurial ointments, and the most convenient for the purpose, because the cleanest, the unguentum hydrargyri ammoniochloridi; to which should be added some powerful perfume, such as essential oil of almonds, lavender, bergamotte, origanum, or camphor. For the head, the red precipitate ointment may be chosen, as being most easily disguised in colour; glycerole with the bichloride of mercury, five to ten grains to the ounce, is another excellent remedy; and for the destruction of nits, a lotion of spirit of wine or spirit of rosemary, containing two grains of the bichloride of mercury to the ounce. Certain simples also have retained a reputation for destroying the insect; for example, staphisagria, the lesser centaurea, and the powdered seeds of parsley and wormwood.

Malis pulicis.—Two kinds of flea are known to attack the human skin, the common flea, or *pulex irritans*, and the *pulex penetrans*, also called chigoe or chiggre, a flea met with in South America and the West Indies. The former is annoying from its habit of piercing the skin to reach the blood, which it draws up for its food; the latter for penetrating the cuticle to deposit its ova.

The punctures of the common flea are made by means of a double lancet attached to its head, and they are deserving of notice as having given the name petechiæ to the spots of purpura, and also as being liable to be confused with purpura. The petechiæ of the flea are small circular red spots, with a central punctum of a deeper red colour, indicating the seat of puncture of the lancet; while the petechiæ of purpura, although of the same figure and size, are more deeply coloured, and purple or livid in hue. If the petechia of the flea be pressed by the finger, the redness of the disk disappears, and the puncture remains evident; but if the

petechia of purpura be submitted to pressure in a similar manner, no alteration of colour takes place. Sometimes, as in cachectic children, the petechiæ produced by the flea may be purple, but the test of pressure is generally sufficient to determine the diagnosis. It may be remembered also that purpura is a constitutional affection, and that the petechiæ are therefore pretty uniformly disseminated in the skin; whereas the punctures of the flea are irregular, and without uniformity.

Strong perfumes and grease are repugnant to the flea, and may therefore be made a protection against its attacks; and in like manner, fragrant herbs are the best means of keeping it away from the clothing and bed-coverings. As a pulicifuge or fleabane, Linnæus recommends the seeds of the absinthium maritimum; while lavender, musk, and thyme, have a similar power.

The *pulex penetrans* burrows into the skin of the wall of the nail of the toes, and into the thick cuticle of the heel. After awhile, a small tumour, as large as a lentil, is observed on the spot, the skin around inflames, a purulent discharge takes place, and is followed by a troublesome ulcer. When the tumour breaks, it is seen to be filled with small white oblong ova; the ova hatch in the midst of the discharges of the ulcer, and keep up further irritation, until a serious state of inflammation is established, sometimes running on to deep ulceration, necrosis of bone, and occasionally to mortification and death.

It is important, in removing the ovisac of the chiggre, to avoid breaking it and leaving any of the ova behind. This is an operation in which the negroes show great dexterity, and prove themselves good surgeons; they dislodge the sac very adroitly with the aid of a pin or needle, and dress the wound with tobacco juice.

Malis cimicis.—The cimex lectuarius, or lectularius, is interesting to us chiefly on account of the inflamed blotches and bumps to which its puncture gives rise. The animal

needs no description; it has its habitat in sleeping apartments, in the joints of the bed, in folds of the bedding, in cracks of the ceiling and walls, under the paper of walls, and in the seams of the boards; it lies hidden by day, but comes out on marauding excursions at night; and besides the suffering and irritation which it occasions when it attacks its victim, it gives out a most detestable cinnamon-like odour when pressed upon or destroyed.

The bumps caused by the puncture of the cimex resemble erythema tuberosum or nodosum, the amount of swelling varying in degree according to the sensitiveness of constitution of the patient. They are commonly, white in the middle, more or less red in the circumference, and marked in the centre by the deeper red of the puncture. Sometimes they are mere blotches without elevation, and sometimes they are very considerably swollen and œdematous, and might be mistaken for erythema nodosum, or, occurring in the neighbourhood of the eyelids, might raise the suspicion of an incipient erysipelas.

The best remedies for the treatment of the erythematous blotches caused by the cimex are: Goulard's lotion, a lotion of bitter almonds with spirits of wine, vinegar, the liquor ammoniæ acetatis, a lotion of one part of spiritus ammoniæ compositus to three of water, or a lotion of the tincture of arnica of a similar strength.

Malis acari.—The acari which attack the human body are two in number, the acarus scabiei, or sarcoptes hominis, and the acarus autumnalis. They are widely different in their conformation, their habits, and their mode of operation on the skin. The acarus scabiei burrows in the epidermis, takes up his abode in that structure, and dies when removed from the skin. The acarus autumnalis is a minute spider that comes from the earth, makes its attack in the autumn season, is predatory in its habits, and temporary in its sojourn on the skin. The acarus scabiei is a domestic companion, the acarus autumnalis an intrusive blood-sucker.

It happens, perhaps happily, that England is not the paradise of the acarus; scabies is rare, and very partial in its distribution on the skin, commonly limited to a few solitary regions. Hence our acquaintance with the acarus is not so familiar as that which happens in other nations. For many years the itch was almost unknown to us in the middle class of life; but latterly, since the sounds of war have been heard upon the earth, and since man has congregated in unwashed masses for the destruction of his fellow-man, scabies has come amongst us almost as a familiar companion, and has recognized no distinction of class. We had always contended that, in this country at least, the acarus was seen only in the hands, and we have repeated that conviction in the third chapter of this book; but we have now to say that, since that chapter was published, we have found the acarus in the skin bordering the axilla in one case, and on the prepuce in another, and in both instances the creature was absent in the hands.

For what relates to the destruction of the acarus we refer the student to the article Scabies in the chapter in question; and we have only to observe, in addition, that we have hardly done justice to the solution of the pente-sulphide of calcium as a valuable and convenient remedy.

The *acarus autumnalis*, or harvest bug, is a minute red spider, scarcely larger than the acarus scabiei, furnished with powerful hooks, by which it is enabled to hold on to the smooth surface of the skin. As its name implies, it is a scourge of the autumn season, and besides the harvest-field, is met with abundantly on a dry chalky soil. It first appears on the legs, and thence spreads more or less extensively to the rest of the body. It is probably provided with a haustellum and lancets with which to puncture the skin and draw the blood; and it gives rise to red blotches, sometimes small and sometimes large, and marked in the centre by a red spot, which is the insect itself firmly fixed to the skin; or, if the insect have been destroyed, the puncture made by

its lancet. The bite of the creature causes troublesome and sometimes intense itching, and the blotch is often pale in the centre, and raised like a wheal of urticaria: hence one of the synonyms of the animal; namely, wheal-worm.

The best remedies for the destruction of the acarus autumnalis and the relief of the itching are, spirits of wine, either alone or with the addition of camphor, a lotion of the bicarbonate of ammonia, one drachm to eight ounces of elder-flower water, a lotion of equal parts of spiritus ammoniæ compositus and water, distilled vinegar, the liquor ammoniæ acetatis, emulsion of bitter almonds with the bichloride of mercury two grains to the ounce, the elder-flower ointment, or a cerate of camphor.

Malis filariæ.—The filaria medinensis, or Guinea-worm, is a pest of tropical climates, and is sometimes imported into England from our Indian possessions. It is a worm of about the dimensions of a crow-quill, and many feet in length, that makes its nest in the subcutaneous tissues, generally of the feet and lower limbs. It remains in the skin, often for many months, without inconvenience; but sooner or later gives rise to inflammation, suppuration, and ulceration, and often to very severe pain. Occasionally it has produced so much local mischief, attended with irritative fever, as to threaten the life of the patient.

When suppuration and ulceration take place, the worm is brought into view, and the endeavour must be made to extract it. This is effected by winding it upon a piece of card from day to day, until the whole worm is obtained. It is impossible to complete the operation at once, on account of the resistance of the creature, which would endanger its rupture; but with care, and by degrees, it may be drawn out entire; and this is not an unnecessary precaution, for if a portion remain behind, it will continue to live and grow.

AMBUSTIO, or BURN.

Burns and scalds are the consequence of excessive heat applied to the skin; in the one instance irradiated from heated bodies, or proceeding from the direct action of flame; in the other, derived from the contact of boiling fluids or melted metals. The effects of heat will be modified by various conditions, such as intensity and duration on the one hand, and the resisting power of vitality on the other. A weak and sensitive skin may be burnt by the sun's rays, while a vigorous skin will be only agreeably stimulated by the same amount of caloric.

In reference to *degree*, burns and scalds have been divided into three groups, as follows :—

Ambustio erythematosa,
„ vesicularis,
„ gangrænosa.

Ambustio erythematosa, or erythematous burn, marks the slightest degree of injury done to the skin by heat; the skin is red, the redness being more or less vivid and diffused; there is some degree of swelling and a pungent smarting pain. The pain continues for several hours; the redness subsides after an interval of hours or days, according to the violence of the burn, and is followed by desquamation of the cuticle.

The common causes of erythematous burn are insolation, or the action of the sun's rays, the prolonged heat of fire, or the momentary action of hot water or steam. Sunburn, or ephēlis solaris, is not infrequent in the summer season, from unwonted exposure to the heat of the sun, and, besides erythema and desquamation, is sometimes accompanied with an increase of the black pigment of the skin and the production of a melasma which is more or less permanent. Another example of this form of melasmic burn is met with on the legs of women in countries where the *chauffrette* is used for

warming the feet; and it may be produced on any part of the skin much exposed to the action of heat, light, and air, either separately or in combination.

Ambustio vesicularis, or vesicated burn, is a superaddition of vesicles or bullæ, to the erythematous congestion of the skin, and indicates a severer degree of injury. The vesicles appear, sometimes immediately, more frequently at the end of a few hours; they vary in size, and are distended with a pale-yellow and transparent serum. Occasionally a portion of the cuticle is removed at the time of the burn, in which case the local action is more severe, and results in suppuration. The pain is smarting and intense; there is more or less swelling, and, if the epidermis have been removed, the surface becomes quickly covered with a glutinous layer of transparent lymph. When the pain and swelling have subsided, the future progress of the cure will be influenced by the degree of preservation of the cuticle. If this remain, it forms a natural dressing and protection to the inflamed part; if it be removed, there must follow suppuration in a greater or less degree, probably superficial ulceration and a subsequent cicatrix.

Ambustio gangrænosa, or gangrenous burn, is an advanced degree of severity of the injury, and indicates a loss of vitality of part of the derma, either the pars papillaris only, or the whole thickness of the corium. The dead portion of the skin is indicated by greyish-white, yellowish, or brownish patches, or, if the burn have extended more deeply, by a dark grey or black surface, surrounded very frequently by an area presenting the vesicular and the erythematous forms of the injury. The vesicles raised upon the dead portion of the skin are filled with a lactescent or brown and sanguineous serum; the pain is very severe, and lasts commonly for one or two days, and is followed by inflammation and suppuration, for the removal of the dead portions and the restoration of the skin. This form of burn is succeeded by a cicatrix of greater or less depth, and by

contraction of the surrounding skin, which produces a certain degree of deformity.

The *constitutional* effects of burns and scalds are, a certain amount of shock to the nervous system, followed by irritative fever and congestion of the organs of the abdomen, thorax, or cranium. The shock is often greatly disproportioned to the injury; the latter may be trivial, the former grave, showing that not the injury alone, but the constitutional susceptibility of the patient is concerned. In slight cases of erythematous burn, there may be no constitutional symptoms; but burns even of moderate extent create a feeling of anxiety on account of the severe reaction which is apt to follow in their train. In one case we may have extreme prostration of muscular power; stupor; cold surface and extremities; quick small pulse, and slow respiration, a state of collapse; in another there may be agitation, excitement, restlessness, sleeplessness, convulsions, and high fever.

According to Dupuytren, there are four periods of danger in the course of a burn; namely, those of irritation, inflammation, suppuration, and exhaustion. After the irritative period is past, inflammation is set up as a reparative process, to remove the dead parts and restore the skin to health; reparative inflammation is accompanied with suppuration, and the suppuration may be wasting and exhaustive. The inflammation is sometimes so severe as to constitute a state of general fever; there may be a frequent and full pulse, dry and parched skin, dry and red tongue, thirst, nausea, vomiting, and symptoms of gastro-intestinal, pulmonary, or cerebral congestion. The suppurative period may be accompanied with pyæmia, and aggravate the internal mischief already established by the preceding inflammation, while the powers of the patient may give way entirely under these congestions, and the exhaustive discharges which are apt to ensue. Lastly, erysipelas, either in its cutaneous or in its phlegmonous form, may be set up at any period of the progress of the case.

Treatment.—The indication for treatment in burns and scalds is, in the first place, to relieve pain and the effects of the shock to the nervous system, and, secondly, to provide a proper dressing for the injured part. The first indication calls for a sedative and stimulant; for example, liquor opii sedativus, fifteen minims; chloric ether, ten minims; brandy, two to four drachms; and this draught may be repeated in one or two hours if the prostration continue. In the absence of the sedative solution of opium, we may have recourse to the tincture of opium, half a drachm, or the compound tincture of camphor, two drachms; and if no medicines are at hand, then we must rely on brandy alone. The doses here indicated are intended for an adult; in children they must of a necessity be smaller.

Locally, the best application that can be used is whiting and water, mixed to the consistence of a thick paste, and painted over the whole surface. This should be applied immediately, as it not only cools the surface and relieves the pain, but also forms a covering preparatory to the future dressings. If whiting and water are not at hand, flour may be used instead, applied thickly by means of the flour-dredger. Outside this application should be placed a sheet of cotton wool, and then a bandage to keep the cotton in its place.

The chalk dressing is applicable to every form and degree of burn or scald, when the cuticle is gone as well as when it remains. If the cuticle be raised in blisters, they should be pricked with a needle and allowed to collapse over the abraded surface, and every precaution should be taken to exclude the atmospheric air as much as possible.

On the same principle, namely, that of substituting a new covering to the skin for that which is lost, various other remedies are in use; for example, a mixture of albumen and oil, linseed-oil and lime-water, and oil inspissated with turpentine. These are all excellent applications, and the latter combines the stimulant properties of the turpentine with the sheathing operation of the liniment.

When properly dressed, the coverings should be disturbed as little as possible, and unless any indications to the contrary arise, the first dressing may be retained until the skin is entirely restored; when, however, there is suppuration and much discharge, and especially if the secretion be offensive, the injured part will require daily dressing with some mildly stimulating salve, such as the unguentum resinæ or unguentum elemi; and the discharges which flow from the separating sloughs may be absorbed by dredging with powder of cinchona.

When the first shock of the injury is over, the patient will require a constitutional treatment suited to his general state of health and condition. He may need mild aperients and an antiphlogistic regimen, or tonics and a generous diet, and at a later period, to maintain the powers of the constitution, it may be necessary to administer stimulants and abundance of food.

GELATIO, OR FROSTBITE.

GELATIO comprehends every degree of injury to the skin resulting from cold, from the mildest and most common form, namely, chilblain, to absolute destruction of vitality or mortification.

Cold attacks first the surface of the body and the extremities the most remote from the centre of circulation; its primary influence is felt in the nerves; these organs are benumbed, and the effects of loss of innervation are speedily communicated to the circulation; the blood flows tardily through its vessels, and assumes the purple and livid hue of venous blood while still circulating in the part; and before long, the stream is altogether arrested and the part becomes white and shrunken. These changes may occur only in a spot of the surface of the skin of small extent, or they may involve a toe, a finger, or an entire limb.

If the temperature be suddenly raised, *reaction* takes

place; in other words, the nerves recover their sensibility, the vessels their power of receiving blood; but both have been injured by the cold, and their state is no longer normal; the nerves are the seat of painful sensations, of itching, tingling, and aching; and the vessels, weakened in their coats, have lost the power of contraction and become unnaturally distended, causing redness and swelling. This is the state which is termed *chilblain.*

But it may happen that the injured part is not only chilled, but frozen and killed; the nerves have no longer the capacity to recover their sensibility, nor the vessels the power of circulating their blood. In this case the reaction is limited to the living but weakened part, and a line is drawn, the *line of demarcation*, between the living and the dead; on the one side there is redness, swelling, heat, and pain; on the other there is discoloration, contraction, coldness, and insensibility. On the living side those operations are set up which result in a disseverment of the living from the dead; on the dead side the part shrivels and dries into a blackened mass, or putrefies and decays.

In the slighter forms of gelatio there may be no *constitutional symptoms*, the suffering being chiefly local; but in the severer forms there will be irritative fever to a greater or less degree, and serious prostration of vital power.

Pernio, or chilblain, or kibe, occurs for the most part in frosty weather, in the winter season, and in children; but occasionally it is met with in adults, and sometimes in the temperate seasons of the year. In the latter case the fault lies, not so much in the cold, as in the low vitality, the want of power of the individual. The more common seat of chilblains is the toes and feet, the fingers and hands, the elbows, and the prominent parts of the face, as the nose and lobules of the ears. They also present certain degrees or varieties, which may be included under the three heads, *erythematous*, *vesiculous*, and *gangrenous*.

Pernio erythematosus is the simplest form of chilblain,

in which the inconvenience arises from the efforts of the circulation to break down the barrier of congestion set up by the cold. The cold which gives rise to it may excite no inconvenience at the time, and it is not until the patient goes into a warm room or near the fire that the suffering begins. The first sensation in coming out of the cold is aching and a feeling of fulness and weight of the part; and this sensation is followed by a teasing itching. These symptoms are most severe in the quiet of the evening and at bedtime, or when the patient is warm in bed, and the itching is often so intense as to destroy rest and sleep.

In appearance, the erythematous chilblain is swollen, of a deep red colour, often purple and livid, the red tints being most visible under the stimulus of warmth, and the purple and livid hues under the depressing influence of cold.

Pernio vesiculosus, the vesicated or broken chilblain, is the common pathological consequence of the congestion constituting the erythematous form, when the congestion is forced beyond a given point, or in persons of lymphatic temperament. The congested vessels of the part relieve themselves by the excretion of the serous part of the blood into the intervascular tissues, and these, in their turn, empty the superabundant fluid upon the derma, lifting up the cuticle from its bed, and constituting a vesicle or bleb. A vesicated chilblain is therefore an erythematous chilblain, surmounted by a broad and shallow bleb or blister, containing serum more or less discoloured with blood. The deep red of the congested skin is seen in the circumference of the swelling, while the blain or blister on its summit is purple or livid, both from the nature of its contents and the condition of the corium beneath.

The symptoms of the broken chilblain are the same as those of the congested chilblain, but aggravated in degree; there is itching, tingling, throbbing, and, superadded to these, smarting, soreness, and pain; and when the blister is broken or the cuticle rubbed off, the central portion of the corium

is found to be grey in colour and lifeless, and is subsequently separated as a slough of greater or less extent.

Pernio gangrænosus is a more severe form of chilblain, and a transition from the milder forms already described to the more aggravated kinds of frostbite attended with extensive or deep sloughing and gangrene. It arises from a more intense and prolonged degree of cold, or from the presence of a debilitated and irritable state of the system, and is accompanied with symptoms indicating a more or less serious derangement of constitution and visceral congestion.

Treatment.—The treatment of gelatio and pernio consists in the restoration of innervation and circulation. This must be done gradually, lest the weakened tissues be overpowered by the too sudden influx of the circulating fluid. The parts should be stimulated by friction, at first gentle, then more active; at first in a cool apartment, and by degrees in a warmer one. In frostbite, friction should be commenced with snow or cold water; then with the hand sheathed with starch powder; subsequently with mild stimulating liniments, and afterwards with stronger ones. The object to be attained is the removal of insensibility and the stagnation of the blood. In the lesser degrees of chill and in common chilblain, this may be gained entirely, and in the severer forms much may be effected, although we may fail to accomplish all we desire.

The stimulant liniments the best adapted for the purpose, and for chilblains, are turpentine and ammonia liniments, aided by chloroform, cajeput, camphor, laudanum, and, where more stimulation is required, by the tinctura cantharidis, spiritus sinapis, compound tincture of iodine, or tincture of cayenne. We have found a liniment consisting of equal parts of spirit of turpentine, white of egg, and distilled vinegar, of great value; and this may be increased in power by the addition of any of the stimulants above named; while Dr. Balfour, of the Military Hospital at Chelsea, directs the unbroken chilblains to be painted twice daily

with a solution consisting of equal parts of compound tincture of iodine and liquor ammoniæ.

The best dressing for the broken and sloughing chilblain is the unguentum resinæ or unguentum elemi; or unguentum resinæ and spiritus terebinthinæ, of each equal parts, used by Dr. Balfour.

The gangrenous chilblain and frostbite must be treated in the manner prescribed for gangrene and mortification; no better local remedies can be found than those ordered for broken chilblain, while the vesicated borders of the line of separation of the gangrenous part may be dusted with the powder of cinchona.

APPENDIX.

HEBRA'S CLASSIFICATION OF CUTANEOUS DISEASES.

1. Hyperæmiæ,
2. Anæmiæ,
3. Anomaliæ secretionum et organorum secernentium cutis,
4. Exsudationes,
5. Hæmorrhagiæ,
6. Hypertrophiæ,
7. Atrophiæ,
8. Neoplasmata (homœoplasiæ),
9. Pseudoplasmata (heteroplasiæ),
10. Ulcerationes,
11. Neuroses,
12. Parasitæ.

I. HYPERÆMIÆ.

A. Active.

1. *Idiopathic.*

a. Erythema traumaticum,
b. „ caloricum,
c. „ ab acribus seu venenatum.

2. *Symptomatic.*

a. Erythema seu roseola infantilis,
b. „ „ variolosa,
c. „ „ vaccina.

B. Passive.

1. *Idiopathic.*

a. Livedo mechanica,
b. „ calorica.

2. *Symptomatic.*

a. Cyanosis.

II. ANÆMIÆ.

1. Anæmia ex jacturâ sanguinis.
   a. a. ex hæmorrhagibus,
   b. a. e morbis prægressis.

2. Anæmia ex inervatione anomalâ.

III. ANOMALIÆ SECRETIONUM ET ORGANORUM SECERNENTIUM CUTIS.

A. *Sebaceous secretion.*

1. Excess of secretion, stearrhœa seu seborrhœa.
   a. general: s. congestiva et simplex,
   b. local: s. capillitii, faciei, organorum genitalium externorum.

2. *Diminished secretion.*
   a. local: asperitudo epidermidis seu pityriasis simplex localis, psoriasis lotricum (washerwomen).
   b. general: as in prurigo, ichthyosis, lichen ruber, marasmus senilis.

3. Faulty secretion and detention of secretion.
   a. comedo,
   b. milium seu grutum,
   c. molluscum contagiosum.

B. *Sudatory secretion.*

1. Anomalies of quantity.
   a. ephidrosis seu hyperidrosis generalis,
   b. ,, ,, ,, localis,
   c. anidrosis.

2. Anomalies of quality.
   a. odor hircinus,
   b. uridrosis,
   c. galactidrosis,
   d. menidrosis.

IV. EXUDATA.

A. Acute.

1. Contagious.

a. Morbilli seu rubeola,
b. Scarlatina,
c. Variola,
d. Vaccinia.

2. Non-contagious.

a. Erythemata polymorpha (multiformia).

α. Erythema exudativum multiforme.

e. multiforme (papulatum, tuberculatum, iris, annulare, marginatum),
e. nodosum,
e. pellagra,
e. epidemicum seu acrodynia.

β. Roseola.

γ. Urticaria.

b. Dermatitides.

α. Dermatitis idiopathica.

d. traumatica, d. venenata, d. calorica } erythematosa, phlegmonosa, circumscripta, diffusa.

β. Dermatitis symptomatica.

Erysipelas seu d. erythematosa,
Furunculus, anthrax, Pseudo-erysipelas } phlegmonosa, circumscripta, diffusa,
glanders or farcy,
pustula maligna.

c. Phlyctænosen.

Herpes, Sudamina,
Miliaria, Pemphigus acutus seu febrilis.

B. Chronic.

1st group: Dermatoses squamosæ.

a. Psoriasis seu lepra Willani.
b. Lichen exsudativus.
l. ruber,
l. scrofulosorum.
c. Pityriasis rubra.

2nd group: Dermatoses pruriginosæ.

a. Eczema.
e. squamosum = pityriasis rubra,
e. papulosum seu lichenodes,
e. vesiculosum = solare Willani,
e. rubrum seu madidans,
e. impetiginosum seu crustosum.
b. Scabies.
c. Prurigo.

3rd group: Dermatoses acneformæ.

a. Acne vulgaris seu disseminata,
b. Sycosis seu acne mentagra,
c. Acne rosacea.

4th group: Dermatoses pustulosæ.

a. Impetigo,
b. Ecthyma.

5th group.

a. Pemphigus chronicus.

V. HÆMORRHAGIÆ.

Purpura.
p. idiopathica,
p. symptomatica.

VI. HYPERTROPHIÆ.

A. *Epidermis.*

1. Without hypertrophy of papillæ.
   - *a.* Lichen pilaris,
   - *b.* Tyloma,
   - *c.* Clavus.

2. With hypertrophy of papillæ.
   - *a.* Pityriasis simplex,
   - *b.* Ichthyosis,
   - *c.* Verrucæ,
   - *d.* Nævus verrucosus.

B. *Pigment.*

Lentigo,
Chloasma,
Melasma,
Nævus spilus,
Pityriasis versicolor et nigra.

C. *Corium.*

Elephantiasis Arabum.

D. *Follicles.*

Sebaceous follicles,
Hair-follicles.

E. *Appendages.*

Excess of hair,
Cornu cutaneum,
Supernumerary nails,
Thickening of nails.

VII. ATROPHIÆ.

A. Epidermis: excoriations, rhagades.
B. Pigment: leucopathia.
C. Cutis: cicatrices of favus, &c.
D. Follicles.
E. Appendages: hair, colour of hair, nails.

VIII. NEOPLASMATA.

A. Epidermis: condyloma.
B. Areolar tissue: molluscum simplex,
   acne rosacea,
   lupus.
C. Fibrous tissue: cicatrices, keloid, callus.
D. Fatty tissue.

E. Vascular tissue.
F. Cholesteatomatous.
G. Osseous tissue.
H. Melanotic.

IX. PSEUDOPLASMATA.
Cancer.
Tubercle.

X. ULCERATIONES.
Idiopathicæ.
Symptomaticæ.

XI. NEUROSES.
A. *Hyperœsthesia.*
1. Dermatalgia,
2. Prurigo latens,
p. intermittens.

B. *Anœsthesia.*
1. localis,
2. generalis.

C. *Dermatospasmus.*
Cutis anserina.

XII. PARASITICÆ.
A. *Dermatophyta.*
Favus,
Alopecia,
Sycosis.

B. *Dermatozoa.*
Pediculi,
Acarus folliculorum,
Sarcoptes hominis.

INDEX.

PAGE

Absorbent properties of the skin 36
Acarus autumnalis..... 491
„ folliculorum 467
„ scabiei 117, 490
Achor..... 53, 419
Achorion Schœnleinii .. 417, 419
Achroma cutis 413
Acne..... 474
„ coniformis..... 475
„ indurata..... 475
„ punctata 475
„ pustulosa 475
„ tuberculosa 475
Acrochordon 256
Agnails 421
Albinism 413
Alibert's classification 62
Allosteotodes 463
Alopecia 429
„ areata..... 432
„ calva 435
„ ungualis..... 422
„ vulgaris 430
Alphos..... 277
„ articulorum 283
„ capitis..... 283
„ circinatus 281
„ diffusus 282
„ faciei 283
„ guttatus 281

PAGE

Alphos gyratus 282
„ manuum 283
„ nigricans..... 284
„ papulosus 282
„ pityriasicus..... 282
„ unguium..... 283
„ vulgaris 281
Ambustio, or burn..... 493
„ erythematosa 493
„ gangrænosa 494
„ vesicularis 494
Anatomy of the skin..... 1
Anæsthesia 214
Anidrosis..... 481
Anthrax 203
Arctura unguis 422
Area..... 432
Arsenical remedies..... 91
Asclepias gigantea..... 390
Asteotodes 462
Atheroma 471
Atrophia cutis 273
„ „ linearis..... 274
Atrophic affections..... 252

Bacchia 129
Bakers' itch..... 86
Barbadoes leg..... 270
Beau, Dr., on the nails..... 14
Boil 200
Bricklayers' itch..... 86

	PAGE
Bronzed skin	399
Bucnemia tropica	270
Bullæ	51, 167
Bullous affections	167
Bunion	263
Burmese ringworm	81
Burns	493
Burnt-holes	188
Cachexia cutis	250
Calcareous miliary tubercles	474
Callus	261
Calvities	435
Cancer cutis	300, 462
Cancroid hypertrophy	300, 462
Canities	437
Carbuncle	203
Carcinoma cutis	300, 462
Ceeley, Mr., on vaccinia	38
Cerumen, or ear-wax	40
Chicken-pox	350
Chigoe, or chiggre	488
Chilblain	498
Chloasma	409
„ erythematosum	410
„ furfuraceum	410
„ pigmentosum	410
„ pruriginosum	410
Chromidrosis	483
Cimex lectularius	489
Cingula	171
Classification of diseases	47
„ Alibert's	62
„ clinical, preface	57
„ Devergie's	63
„ Hardy's	63
„ Hebra's	Appendix
„ Plenck's	60
„ Riolan's	60
„ Willan's	47, 61
Clavus	261
Comedo vel comedones	466
Corns	261
Cornua humana	471, 472
Crusta lactea	83
Cuticle, or epidermis	7
Cutis unctuosa	462
Cyanopathia	413
Defœdatio unguium	423
Defluvium capillorum	430
Degeneratio unguium	423
Derma, structure of	3
Dermophytic affections	417
Devergie's classification	63
Ecchymomata	236
Ecchymoses	236
Ecphyma	256
„ acrochordon	256
„ clavus	261
„ mollusciforme	255
„ verruca	257
Ecthyma	193
„ cachecticum	195
„ gangrænosum	195
„ infantile	195
„ luridum	195
„ vulgare	194
Eczema	66
„ ani	85
„ articulorum	86
„ aurium	84
„ axillarum	85
„ capitis	81
„ diffusum	80
„ digitorum	88
„ erythematosum	74
„ faciei	83
„ figuratum	80
„ fissum	78
„ ichorosum	76
„ impetiginodes	78
„ inguinum	85
„ intertrigo	80, 85
„ lichenosum	75
„ madidans	76
„ mamillarum	85

PAGE

Eczema manuum et pedum .. 86
„ marginatum 80
„ mucosum 80
„ neurosum 80
„ nummulare 80
„ œdematosum..... 79
„ oris et labiorum 84
„ palmare et plantare.. 87
„ palpebrarum..... 84
„ papulosum..... 75
„ perinei 85
„ pudendi..... 85
„ pustulosum 78
„ rubrum 76
„ sclerosum 79
„ solare..... 76
„ squamosum 78
„ umbilicale..... 85
„ unguium 88
„ universale..... 80
„ verrucosum 79
„ vesiculosum 76
Eczematous affections 66
Elephantiasis 271, 377
„ Arabum 271
„ Græcorum 377
Encysted tumours 470
Endermic method 38
Entozoon folliculorum 467
Ephēlis..... 399, 403
Ephidrosis 478
„ chronica 479
„ cruenta..... 483
„ discolor..... 483
„ olens..... 482
„ partialis 479
Epidermic hypertrophy..... 460
Epidermis, or cuticle..... 7
Epidermophyton 419
Epinyctis..... 199
Epithelial cancer 462
„ hypertrophy..... 461
Epithelioma..... 302, 462
Erysipelas 139

PAGE

Erysipelas bullosum 143
„ capitis 144
„ erraticum..... 142
„ faciei..... 144
„ mammæ 145
„ miliare 143
„ metastaticum 142
„ œdematodes..... 143
„ phlegmonodes.... 143
„ phlyctænodes 143
„ traumaticum 144
„ umbilicale 145
Erythema 133
„ a decubitû 136
„ a gelu 136
„ ab igne..... 136
„ circinatum 136
„ fugax..... 134
„ intertrigo..... 135
„ iris..... 178
„ læve 135
„ marginatum..... 136
„ menstruale 135
„ nodosum 137
„ œdematosum 135
„ papulatum 136
„ paratrimma..... 136
„ tuberculatum 136
„ tumescens 134
Exanthemata 48, 132
Exanthematous affections.... 132
Exhalent properties of the skin 35

Favus 53, 419, 446
„ cohærens..... 447
„ confertus..... 447
„ dispersus..... 447
„ scutiformis 447
„ urceolaris 447
Ferro-arsenical mixture 91
Ficus unguis 421
Filaria medinensis..... 492
Flores unguium..... 423
Follicles, anatomy of..... 16

PAGE

Fragilitas crinium 438
Frostbite 497
Furuncular affections 192
Furunculus 198
„ anthracoides 206
Fuscedo cutis 399

Gelatio, or frostbite 497
Glycerole 466
Grocers' itch 86
Grubs 467
Grutum 473
Guinea-worm 492
Gutta rosacea 127
„ „ papulosa 128
„ „ punctata 128
„ „ pustulosa 128
„ „ tuberculosa .. 128

Hæmidrosis 483
Hæmodyscrasic affections 231
Hair, anatomy of 18
„ development of 27
„ diseases of 427
„ growth of 27
Hair-follicles, anatomy of 18
„ diseases of 446
Hardy, classification of 63
Hebra, classification of .. Appendix
Herpes 168
„ auricularis 174
„ bullosus 175
„ circinatus 175
„ iris 177
„ labialis 173
„ miliaris 173
„ nasalis 174
„ palpebralis 174
„ phlyctænodes 173
„ præputialis 174
„ proserpens 172
„ pudendalis 174
„ zoster 171
Hirsuties 428

PAGE

Hives 188, 351
Hordeolum 203
Horn-pock 249
Horns, human 471, 472
Hydrocotyle asiatica 391
Hyperæsthesia 213
Hyperidrosis 478
Hypertrophia venarum 226
Hypertrophic affections 252
Hypertrophy, cancroid 462
„ epidermic 460
„ epithelial 461

Iatraleptic method 37
Ichthyosis 242
„ cornea 249
„ farinacea 245
„ furfuracea 245
„ nitida 245
„ reticulata 245
„ sebacea 246
„ serpentina 245
Idrosis 478
„ maligna 480
„ simplex 478
Ignis sacer 170
Impetigo 112
„ figurata 115
„ phlyctænodes 116
„ sparsa 115
Inoculation 341

Joint-evil, or lepra nodosa .. 383
Jugaru, or lepra nodosa 391

Kelis 265
„ clavata 266
„ cylindracea 266
„ idiopathica 268
„ ovalis 266
„ radiciformis 266
„ serpens 268
„ spuria 268

PAGE
Kelis traumatica 268
„ tuberculosa 268
„ vera 268
Kĕrion 451
„ confertum 452
„ dispersum 452

Laminæ flavæ epithelii..... 461
Lapsus unguis 422
Lentigo 408
Lepra seu elephantiasis 377
„ alphoides 281
„ inveterata 282
„ nigricans 284
„ syphilitica 284
„ vulgaris 281
Leprosy 377
Leucoderma 413
Leucopathia 413
Leucosma cutis 413
„ „ figuratum .. 414
Lichen 100
„ agrius 87, 101
„ circinatus 109
„ circumscriptus 104
„ dispersus 104
„ eczematosus 76, 101
„ gyratus 110
„ lividus 109
„ pilaris 109
„ pruriginosus 104
„ simplex 103
„ strophulosus 105
„ syphiliticus 361
„ tropicus 107
„ urticatus 106
Lupus 291
„ erythematosus 295
„ exedens 291
„ non exedens 292
„ vorax 292

Maculæ 54
Malis seu maliasmus 485

PAGE
Malis acari 490
„ cimicis 489
„ filariæ 492
„ pediculi 485
„ pulicis 488
Measles 314
Melanoderma 399
Melanopathia 399
Melasma cutis 399
„ blepharale 404
„ figuratum 403
„ frontis 405
„ universale 400
Meliceris 471
Melitagra 84
Mendacia unguium 423
Mentagra 455
Mentagrophyton 457
Microsporon furfur 417, 419
Miliaria 182
„ alba 182
„ clinica 182
„ rubra 182
Miliary fever 183
„ tubercles 473
Milium 473
Molluscum 256, 469
„ contagiosum 469
„ sessile 469
„ simplex 469
Morbilli 314
Morbus pedicularis 485
Morphœa 393
„ alba atrophica 395
„ „ lardacea 394
„ „ tuberosa 394
„ nigra 393
Morpio 487
Mudarrh, or mudar 390

Nævus 223, 252
„ araneus 225
„ „ reticulatus.. 226
„ hypertrophicus 252

PAGE
Nævus hypertrophicus pigmentosus 253
„ „ pilosus 253
„ „ vulgaris 253
„ vasculosus arteriosus 223
„ „ venosus 225
Nails, anatomy of 11
„ diseases of 421
Nettlerash 150
Nervous affections..... 213
Nigredo vel nigrities cutis .. 399
Noli me tangere vel lupus .. 291
Nosophyta 417

Onychia..... 425
„ maligna 425
Ophiasis 432
Osmidrosis 482

Panaris, or whitlow..... 425
Papillæ cutis 5
Papulæ..... 49
„ epidermicæ 461
„ flavæ epithelii cutis .. 461
Pediculus capitis 486
„ corporis..... 486
„ ferox..... 487
„ pubis..... 487
Pemphigus 168, 184
„ benignus 187
„ foliaceus 188
„ gangrænosus 188
„ infantilis 188
„ iris 178
„ pruriginosus 189
„ solitarius..... 187
„ vulgaris 187
Pernio or chilblain 498
„ erythematosus 498
„ gangrænosus 500
„ vesicularis 499
Perspiration 40
„ chemical composition of .. 31, 45

PAGE
Perspiration, diseases of 460
„ insensible..... 40
„ sensible..... 40
Perspiratory secretion 40
Petechiæ 235
Phlyctænæ 168
Phlyzacium 53
Phtheiriasis..... 485
Phyma 199
Physiology of the skin 33
Phytodermic affections 417
Pigmentary affections 398
Pityriasis..... 82, 99
„ capitis 100
„ figurata 100
„ nigra 100
„ rubra 100
Plenck, classification of 60
Pompholyx 168
Porcupine disease 249
Pores, anatomy of 16
Porrigo 83
Prickly heat 107
Pruna 200, 204
Prurigo 219
„ mitis 104
„ senilis..... 221
„ vulgaris..... 221
Pruritus 214
„ ani..... 215
„ præputii 216
„ pudendi 216
„ scroti 216
„ urethræ 216
Psora humida..... 82
„ sicca 82
Psoriasis..... 82, 99
„ palmaris 88, 99
Psorophthalmia 84
Psydracium..... 53, 115
Pterygium unguis 421
Pulex irritans..... 488
„ penetrans..... 489
Purpura 232

PAGE
Purpura hæmorrhagica 237
„ nautica 238
„ pemphigoides 234
„ senilis 239
„ simplex 236
„ urticans 238
Pustulæ 52

Red-gum 105
Rete mucosum 8
Ringworm 439
„ Burmese 81
Rose rash 158
Roseola 158
„ annulata 162, 361
„ arthritica 164
„ autumnalis 163
„ cholerica 164
„ corymbosa 160
„ diffusa 361
„ febris continuæ 164
„ maculosa 163, 361
„ miliaris 165
„ punctata 162
„ rheumatica 164
„ syphilitica 361
„ vaccina 164
„ variolosa 163
Rubeola 314
„ nigra 315
„ notha 315
„ sine catarrho 315
„ sine exanthemate 315
„ vulgaris 314
Rumex gigantea 390
Rupia 363
„ escharotica 195
„ prominens 364
„ simplex 364

Sarcoptes hominis 490
Sauriderma spinosum 249
„ squamosum 249
Sauriosis 243

PAGE
Scabies 117
Scabrities unguium 423
Scalds 493
Scalled head 451
Scarlatina 319
„ anginosa 323
„ maligna 324
„ papulosa vel milliformis 320
„ phlyctænosa 320
„ plana vel lævigata 320
„ pustulosa 320
„ simplex 323
„ sine exanthemate 325
„ vesicularis 320
Scarlet fever 319
Scrofula 290
Scrofuloderma 290
Sebaceous secretion 33, 40
„ „ diseases of 446
„ tubercles 473
Sebiparous glands 32
„ system 31
„ „ diseases of 460
„ tumours 468
Seborrhœa 462
Sebum 469
Secretion of the skin 39
Selene unguis 423
Sensation of the skin 34
Shingles 171
Small-pox 335
Spilus 253
Squamæ 53
Stearrhœa 462
„ cærulea 465
„ flavescens 463
„ nigricans 463
Steatoma 472
Steatozoon folliculorum 467
Stigma 235
Strophulus albidus 105
„ candidus 106
„ confertus 105

PAGE

Strophulus intertinctus 105
„ volaticus..... 106
Struma seu scrofula 290
Sudatoria..... 478
„ maligna..... 480
„ miliaris 479
„ simplex 478
Sudoriparous system..... 28
„ „ diseases of 478
Sweat, composition of 31, 45
Sweat-glands 29
Swine-pox 350
Sycosis..... 455
„ coniformis 456
„ erythematosa..... 455
„ ficosa 456
„ fungosa 456
„ papulosa..... 456
„ pustulosa 456
„ tuberculosa 456
Syphilis 360
Syphiloderma..... 360
„ erythematosum.. 361
„ infantile..... 367
„ palmare et plantare 365
„ pustulosum 363
„ roseolosum 361
„ squamosum 365
„ tuberculosum .. 362
„ ulcerosum..... 364
„ vesiculosum 363

Terminthus 200, 204
Tinea 439
„ annulata 441
„ capitis 440
„ tonsurans..... 440
„ unguium 424
Tooth-rash 105
Traumatic affections..... 485
Trichophyton tonsurans 417, 419, 443
Trichosis..... 439

PAGE

Trichosis annulata..... 441
„ diffusa 440
„ gyrata..... 442
„ pityriasica..... 441
„ scutulata 440
„ tonsurans 440
Tubercula 54
„ mucosa 363
Tumores encystici..... 470
„ sebipari 468

Ungual affections..... 421
Ungues adunci 422
Urticaria..... 150
„ ab ingestis..... 153
„ conferta..... 154
„ evanida 154
„ febrilis 152
„ perstans..... 154
„ subcutanea 154
„ tuberosa..... 155

Vaccination 355
Vaccinia 353
Varicella..... 348
„ coniformis..... 350
„ globularis 351
„ papularis 349
„ pustulosa 350
„ sine varicellis 352
„ umbilicata..... 351
„ verrucosa 349
„ vesicularis..... 350
Variola..... 335
„ confluens 340
„ discreta 340
„ sine variolis 341
Varioloid..... 348
Vascular affections..... 223
Verruca 257
„ acrochordon..... 256
„ digitata..... 259
„ filiformis 259
„ lobosa 258

PAGE

Verrucæ confluentes 259
„ fibrosæ 259
„ lobosæ 259
„ minimæ..... 259
„ sessiles..... 259
Vesiculæ..... 49
Vibices..... 236
Vitiligo 379
„ leuce 394
„ melas..... 393
Vitiligoidea..... 461
„ granulosa 461
„ plana 461

Washerwoman's itch 86
Wheal-worm 492

PAGE

Whitlow 426
Willan, classification of 61

Xanthopathia 407
Xeroderma 242, 243
„ ichthyoides 248
„ saurioides 248
„ simplex 247
„ spuria 248

Yellow hypertrophy of the epithelium 461

Zittmann's decoction 374
Zona ignea 171
Zymotic affections 305

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