On the parasitic affections of the skin / by T. M'Call Anderson.

ON THE

PARASITIC AFFECTIONS OF THE SKIN.

BY

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TO

DR. BAZIN,

PHYSICIAN TO THE SAINT LOUIS HOSPITAL, CHEVALIER OF THE LEGION OF HONOUR, ETC.,

This Work is Inscribed,

IN ACKNOWLEDGMENT OF THE

BRILLIANT SERVICES WHICH HE HAS RENDERED TO SCIENCE,

AND OF THE HIGH ESTIMATION

IN WHICH HE IS HELD BY HIS FORMER, GRATEFUL PUPIL,

THE AUTHOR.

PREFACE.

THE subject, which it has been my endeavour in these pages to elucidate, has only of late begun to engage the attention of the profession; so that, while I have spared no labour in endeavouring to render the work as complete and accurate as possible, it must of necessity contain statements, which further investigation, and more extended experience, may not altogether verify.

The substance of this volume appeared lately, in the form of a series of articles, in the columns of the *Medical Times and Gazette*, but these have been thoroughly revised and corrected, and several new woodcuts have been added.

I take this opportunity of expressing my best thanks to my friend and colleague Dr. Andrew Buchanan, jun., for the loan of several microscopic preparations, and to Mr. John Wilson, Fifeshire, for his great kindness in executing a number of very accurate drawings, from which many of the woodcuts have been taken.

GLASGOW, 6 ST. GEORGE'S ROAD,
September 10*th*, 1861.

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ON THE

PARASITIC AFFECTIONS OF THE SKIN.

CHAPTER I.

Great as is the progress which of late years has been made in the improvement of our knowledge of most of the branches of medicine, in none has this been manifested in a more marked and striking manner than in ascertaining the true nature and rational treatment of cutaneous affections. Our continental brethren have, however, certainly outstripped us in this department of medical science. For this the reasons are abundantly obvious. In France and in Germany there is much more opportunity afforded to those desirous of devoting themselves to the study of a speciality, as is evinced in the formation of large special hospitals, and in the institution, by the different continental governments, of Professorships in connection with these Institutions. For, however much I may coincide in the opinion, that the science and art of medicine, when split up into a great number of branches, do materially suffer, still I cannot

help thinking that, by special attention to a few of the more important and least studied diseases, and by the formation of hospitals for promoting that purpose, the extent of our knowledge is enlarged, and the public are thereby so much the gainers.

It is, unfortunately an indisputable fact, that the study of cutaneous diseases is very much neglected in this country; and, although there are a good many practitioners who are well acquainted with them, these are decidedly in the minority, and there can be no doubt that the great proportion of the medical men in this country, though guided by broad general principles in the treatment of these affections, are yet very much in the dark with regard to the appearances and nature of all but a few of the commoner varieties; and every one knows that, without forming a correct diagnosis, general principles of treatment cannot successfully be put into practice. Besides, general principles do not form a sufficient guide to their treatment, for there are several internal, and many external remedies which form almost a special branch of therapeutics, and which require separate and attentive study.

A great deal has of late been written against the special study of different branches of medicine, and against special hospitals and dispensaries. But who can glance, were it but for a moment, at the progress which has been exhibited during the last few years, without acknowledging that it is to the special study of particular complaints that this progress is to be attributed. And is it not a

curious thing that, while hundreds of practitioners call out loudly against specialities, the majority make exceptions in favour of one or two classes of disease which, according to them, fall to be appropriately treated in special institutions.

This was very well illustrated a few months ago, when a meeting of the metropolitan counties branch of the British Medical Association was called, for the purpose of considering the subject of special hospitals. The gentlemen whom I am about to mention all condemned special institutions.

Dr. A. P. Stewart, however, had no objection to the establishment of hospitals for consumption.

Mr. Henry Thomson agreed as to the usefulness of hospitals for diseases of children, and for mental diseases.

Dr. Seaton thought that hospitals for the treatment of epilepsy were necessary.

While Mr. Webber did not know that there was any great objection to hospitals for deformities—for skin diseases—for diseases of the eye and of the chest.

So that these gentlemen, while stating themselves adverse to the establishment of special institutions, made exceptions in favour of hospitals for

Consumption.	Skin diseases.
Diseases of Children.	Eye diseases.
Mental diseases.	Chest diseases, and
Deformities.	Epilepsy.

They are thus apparently in the same predicament as were the followers of Mahomet with regard to the eating

of pork, and to whom Cowper devotes the following lines :—

"Thus says the prophet of the Turk,
Good Mussulman, abstain from pork ;
There is a part in every swine
No friend or follower of mine
May taste, whate'er his inclination,
On pain of excommunication.

Much controversy straight arose,
These choose the back, the belly those;
By some 'tis confidently said,
He meant not to forbid the head;
While others at that doctrine rail,
And piously prefer the tail.
Thus conscience freed from every clog,
Mahometans eat up the hog."

This meeting terminated by passing unanimously the following resolution :—"That a liberal scheme in the organization of general hospitals is a primary consideration in hospital reform, while the system of special hospitals is a secondary consideration, and often the result of necessity."

It is surely one of the best arguments which can be adduced in favour of special institutions that a meeting, called apparently on purpose to condemn them, ends by unanimously condemning the administration of the general hospitals.

It appears to me, if I might be allowed to express an opinion, that, while every practitioner should have a well-grounded knowledge of his profession, and should

have his practice established on a broad and firm basis, he should devote his leisure hours to the cultivation of one particular branch; by which means his interest in his profession must be greatly increased, and he may, perhaps, be thus enabled to improve our knowledge of that particular subject, by doing which he will assist more in the alleviation of human suffering, and will call forth, far more, the applause and gratitude of mankind, than by paying equal attention to all the varied phases of disease to which the human frame is liable.

Without enlarging further for the present upon this *quæstio vexata*, I now pass to the consideration of those points more directly connected with the subject, and first of all to the classification of the parasitic affections of the skin. These may be conveniently divided into two heads.

A. Cutaneous affections due to the presence of a *vegetable* parasite.

B. Cutaneous affections due to the presence of an *animal* parasite.

The cutaneous affections due to the presence of a vegetable parasite are four in number, viz.—

I. Favus.

II. Tinea tonsurans, of which there are three varieties, viz. :—1. Herpes circinatus. 2. Sycosis. 3. Herpes tonsurans.

III. Alopecia areata.

IV. Pityriasis versicolor.

Each of these four diseases I believe to be due to the

presence of a distinct parasite, but (without entering into details at present), it may be stated that this is not the opinion of Hebra of Vienna, who believes that they are all produced by one and the same fungous growth, and that the various affections so produced, are owing to the quantity of the parasite deposited, to its stage of development, and to the particular structure of the skin attacked. He supports his statement by the fact, that he has seen Favus and Herpes tonsurans developed on the same individual, apparently from the same cause. But there is no reason why a patient may not be attacked by two fungous growths at the same time, and besides, such cases are decidedly rare. So that they may be considered as cases of coincidence and not as instances of two affections, owing to one and the same parasite. This is a subject, however, which has not yet been thoroughly investigated, and it is one, besides, of more scientific than practical value.

CHAPTER II.

FAVUS.

(Disease due to the presence of the Achorion Schönleini.)

Scall-head—Honeycomb ringworm—Porrigo favosa—Porrigo lupinosa—Tinea vera (Lorry)—Porrigo-phyte (Gruby)—Erbgrind—Teigne faveuse (Alibert).

THERE is no cutaneous disease, the consideration of which I enter upon with greater pleasure than that of Favus. It affords one of those instances—alas, too rare in medicine—of a highly successful mode of treatment, founded upon a correct knowledge of the nature of the affection. It is one of the best examples which could possibly be adduced of the great usefulness of the microscope in the investigation of pathological structures, and of the practical benefit resulting therefrom, one of the best refutations to the detractors of this most valuable instrument. It is not very long since favus was looked upon as a pustular disease, and regarded as incurable; or, if its true nature has sometimes been suspected, the appropriate treatment has been only partially or not at all put into practice. There are few dermatologists, if any, who now deny the presence of a vegetable parasite in the favus crusts, although there are very many who look upon its existence as altogether secondary, ascribing the origin of the affection to deranged nutrition, a view altogether untenable in the present state of our knowledge.

Without entering into particulars to be treated of further on, I would merely state here, that the discoveries of the microscope; the results of the inoculation of the parasite on man, as well as on the lower animals and plants; the contagious nature of the disease; and the astonishing and never-failing success of the treatment—form an ample refutation to the idea of its being a constitutional disease. There can be no doubt that, as the advances which have been made in our knowledge of this subject, thanks to the discoveries of our continental brethren, become more widely disseminated, favus will come to be looked upon as a comparatively trifling disease, and instances will cease to be met with of poor creatures frequenting our dispensaries, their scalps covered with crusts, or changed into parchment-like structures, and their heads denuded of hair, objects of disgust to themselves and of loathing to those around them.

Favus attacks three different structures of the skin—namely, the orifices of the hair follicles, the epidermis, and the nails. It most frequently attacks the hair-follicles, and is much more usually met with on the scalp than on other parts. The course of this variety (*Favus pilaris*) is best studied on the scalp after the eruption has been temporarily removed by treatment. On examining it attentively little yellow specks are seen scattered here and there, and if one of these is examined with a magnifying glass it is seen to be a minute, rounded, bright yellow crust depressed in the centre, through which one or more hairs pass. These yellow crusts, at first so

minute as to be hardly visible, and so beautiful when viewed in this rudimentary state with the aid of a glass, gradually but steadily increase in size till at last they come to have a diameter of three or four lines, but still retain the rounded or at least the oval form, the central depressions in each of the crusts being very marked, and the deep yellow colour very characteristic. On attentively examining one of these, its edges are found, in the early stages, to be somewhat *beneath* the level of the surrounding skin; but as it increases in size and in age, they gradually become more prominent and at last rise *above* the level of the epidermis. The surface of the crust also forms primarily a perfectly smooth depression, but this also in process of time disappears, and a series of marks in the form of concentric circles, at first very indistinct, make their appearance and become more and more marked as the crust becomes older, till finally the depressed form disappears, and the crust, becoming more dry and friable, ultimately breaks up. The cup-shaped eruption can be raised from the subjacent structures with great readiness, and, if carefully done, there is left a circular depression covered by a very thin layer of epidermis, corresponding to the convex lower surface of the crust. If removed rudely this layer may give way, and a slight exudation of blood may even result. It is remarkable how soon the depression in the skin fills up. It appears that the crust when *in situ* causes compression of the subcutaneous tissue, but this latter, soon after the removal of the crust, regains its original volume owing to

its elasticity, so that in the space of a couple of hours the depression is quite filled up. A new favus cup, however, shortly makes its appearance in place of the one removed, unless means be taken to prevent its formation. When these crusts are scattered here and there, and do not encroach upon one another the name *favus lupinosa* is applied to them; but if, on the contrary, the number of the crusts increases greatly, and they become thickly set together, touching and encroaching upon one another, their circular depressed form is lost, they become partly detached, and form irregular masses of yellow crusts, quite different in shape from the characteristic cups of the former variety, and to which the name *favus scutulata* has been given. The edges of the patches in this variety are formed by a series of little segments of circles showing the remains of the original circular favus cups. Finally, there is a form designated *favus squarrosa*, or porrigo squarrosa, which is only met with when the disease has lasted a lengthened period of time. In this variety the crusts have completely lost their circular and depressed form and their bright yellow colour, and have assumed a dirty whitish tint. They are also almost completely detached from the scalp, and remain entangled in the hairs. One cannot, however, regard these three so-called *varieties* of the disease so much in the light of varieties, as of stages of one and the same affection—the favus lupinosa, scutulata, and squarrosa, corresponding merely to the first, second, and third stages of the disease; and consequently we find the last mentioned of these

only in cases of long standing. The favus lupinosa is, however, not unfrequently seen in chronic cases, the disease continuing in its first stage.

There are only three other symptoms to be mentioned to complete the picture, namely, the itching, the change in the appearance of the hairs, and the odour of the crusts. The itching is generally the first symptom which attracts attention, but it is not usually very violent although it occasions the patient to scratch the parts affected. It continues, as a general rule, more or less during the whole course of the disease, and is generally the cause, as we shall see, of the propagation of the affection from the scalp to other parts of the body. The hairs lose their shining appearance, owing to the diminution of the sebaceous matter from atrophy of the secreting glands. They look dull and dry, and assume an ash-grey or more rarely a reddish colour. They break also more readily than healthy hairs, although their friability is very slight in comparison with that of the hairs in Tinea tonsurans. They are often in addition twisted or even split longitudinally, and are much more easily extracted than healthy ones. Finally, when the disease has lasted a long time, they fall out, leaving patches of alopecia which is irremediable, the hair-follicles being destroyed. This destruction of the follicles is partly owing to the favus cups pressing upon them and gradually obliterating them, and partly to the disease occasioned in them by the presence of the parasite. In consequence of the destruction of the sebaceous glands and hair-follicles, the skin

of these bald parts is very dry, and when pinched up it appears brittle and has a great resemblance to parchment.

The odour of the affected parts is very characteristic, and is said to resemble that of mice, or of the urine of cats. Too much stress is, however, often laid upon this symptom, which should only be looked upon as an accessory one in arriving at a diagnosis, otherwise it is apt to lead to error, as impetigo of the scalp not unfrequently exhales an odour *not very different.* This is, no doubt, contrary to the statements of many dermatologists; but still it is of importance to state the difficulty which I myself have occasionally experienced with regard to it.

As before hinted, the disease generally commences with itching followed by the appearance of the cup-shaped crusts; but in many cases the pruritus is accompanied by an erythematous state of the skin. This redness accompanied by slight swelling and desquamation may be diffused or circumscribed, in which latter case it forms, according to Bazin, *minute* circles of a *very uniform diameter* which are distinguished by these two characters, their *small* and *uniform* size, from the circles of herpes circinatus, which have a variable diameter, and are sometimes very large. This erythematous condition is more frequently seen when the disease extends to the body; but it is probably just as frequent on the scalp where it is overlooked, from being hid by the hairs, or the disease has passed this stage before the patients find

themselves obliged to seek advice. The yellow crusts soon appear in the place of the erythema, or we may see the red patches at one spot and the cups at another. After the development of numerous crusts, secondary eruptions, generally of an impetiginous character, frequently appear—owing to the irritation produced by the parasite—which tend often to obscure the diagnosis, and this is one of the reasons which led dermatologists to speak of favus as a pustular, and not a parasitic affection. The irritation is also sufficient to produce in many cases engorgement of the neighbouring glands, which has erroneously been regarded as of a scrofulous nature.

Lice are often to be met with on the head in great abundance; the filthiness which is a powerful predisposing cause of favus, tending greatly to their development also.

When the disease attacks the scalp, it may be limited to one or several small scattered patches; but more usually, commencing in this way, the patches gradually extend and unite, large diseased surfaces are produced, and the whole scalp becomes at length involved, unless proper therapeutic indications are resorted to. The scalp is usually the part of the body first affected, and the disease is transmitted in process of time to other parts in the following way:—The patients, urged by the itching, scratch their heads, by which means portions of the crusts are carried away beneath the nails, and, on scratching some part of the body afterwards, the spores are inoculated and give rise to the disease in these parts.

Hence it happens that almost all cases of favus of the head of very long standing, are complicated with favus of the trunk. There is hardly any part of the body where the favus cups cannot develope themselves because there are few parts altogether void of hairs. This is taking for granted that a favus cup *always* developes itself in the orifice of a hair-follicle, which I believe to be the case. Many cite as an argument against this view, that a favus cup has occasionally been seen on the *glans penis*, but even in such cases the rudiment of a hair can be detected when carefully looked for (a). This disposition of the cups around the hairs is certainly owing to the spores of the parasite falling into the hair-follicles, and there germinating. A still further corroboration of the view that the presence of the hair-follicle is necessary for the production of each favus crust, is the undoubted fact that favus lupinosa is met with on the body more frequently than the confluent variety of the disease, and simply because there are not sufficient hair-follicles on the body, in the majority of cases, for the production of favus scutulata or squarrosa, the two confluent varieties of the disease. It may be asked, however, why more than one hair often traverses one favus cup? This is easy of explanation; for sometimes more than one hair comes from one hair-follicle, and when this is not the case, it will be found that the supernumerary hairs traverse the crust obliquely, and merely pass through it, owing to their having this direction. These are, therefore, only accidentally involved in the crusts, and are not *necessarily*

diseased, unless the follicles from which they proceed are also affected. When other parts than the scalp are attacked, it is generally the arms or the legs which are the seat of the crusts. They are to be met with, however, on the body and face, and I lately saw a case where a series of cup-shaped crusts formed a sort of semicircle round the tip of the nose.

Favus of the epidermis is much more rare than the above variety, and has not been much noticed in English works on dermatology. I have seen it several times, but always in conjunction with, and as it were a complication of, favus of the hair-follicles. It has not at all the characteristic appearance of the latter, and has doubtless been often overlooked in consequence. There is slight redness of the epidermis of the affected parts, upon which a scaly-like crust forms, which is difficult of description, as it varies somewhat in appearance, having sometimes a great resemblance to a spot of pityriasis, but oftener to a thin crust of eczema. These crusts are usually of no great extent, and are scattered here and there; they have a white colour, marked by *yellow patches*, and it is in these yellow portions that the favus matter is detected in abundance.

The white portions of the crusts consist almost entirely of epithelial cells. The nature of the patches may be at once suspected, from their appearing on the skins of persons affected with the follicular variety of the disease, and the use of the microscope will clear up all difficulty. A case of this variety apparently, attacking the scalp, is

described by Bennet under the name of *Parasitic pityriasis* (b).

Favus of the Nails (*Favus Unguium*) is not commonly met with. It occurs in those who have been long affected with favus of the hair-follicles. Persons so affected, in scratching the diseased parts with the nails, succeed in causing a deposit of some of the vegetable matter beneath the nail, where it takes root and germinates. Instances of favus unguium, as a primary affection, are very rare, but they have been met with. When the vegetable matter is inserted beneath the nail it is under circumstances the most favourable to its germination, situated as it is between the superficial and deep epidermic layers, the nail forming the superficial one —see Fig. 1. Mahon first observed this affection on his

Fig. 1.

A, A, upper surface of nail; B, B, lower surface of nail; C, C, favus matter (white in the wood-cut, yellow in the original), running upwards and forwards between the laminæ of the nail.

own person, having contracted it while treating children affected with favus. The symptoms are well described by Bazin. After the spores have remained for some time, and have commenced to germinate beneath the nail, the latter becomes thickened over the affected part, while its colour at the same time apparently changes,

becoming gradually more and more yellow, owing to the favus matter shining through. As the fungus grows and increases, it gradually presses on the nail, causing further changes; its longitudinal striæ become very evident, and fissures are formed. By degrees, as the pressure on the subjacent nail continues, it becomes thinner and thinner, till a perforation occurs, and then a favus cup makes its appearance externally, more or less deformed, however, owing to the pressure previously exercised upon it from above.

(a) "M. Lebert, ayant observé un godet favique sur le gland, en a conclu qu'il n'y a pas de rapport nécessaire, indispensable, entre la forme urcéolaire et la présence d'un poil. Mais je suppose que M. Lebert, trop confiant dans les assertions des anatomistes qui n'admettent pas de poils dans cette région, n'aura pas mis tous ses soins à découvrir ce poil dont il nie l'existence; car, nous-même, que avons été assez heureux pour observer, comme M. Lebert, un godet sur le gland, avons pu très-aisément constater, à l'aide d'une loupe, un poil rudimentaire au centre de la dépression favique."—Leçons Théoriques et Cliniques sur les Affections Cutanées Parasitaires: par le Docteur Bazin (1858), p. 90.

(b) "Clinical Lectures on the Principles and Practice of Medicine." Second Edition, p. 793.

CHAPTER III.

In the preceding chapter I entered upon the consideration of favus, and endeavoured to describe the symptoms of the disease as it attacks the hair-follicles, the epidermis, and the nails.

The consideration of the *causes* of favus involves many points of interest; and, first of all, the characters of the crusts when examined microscopically. When one of these is seen in the earliest stage of its development, it is found to be covered by a thin layer of epidermis externally, but as it increases in size, and becomes more

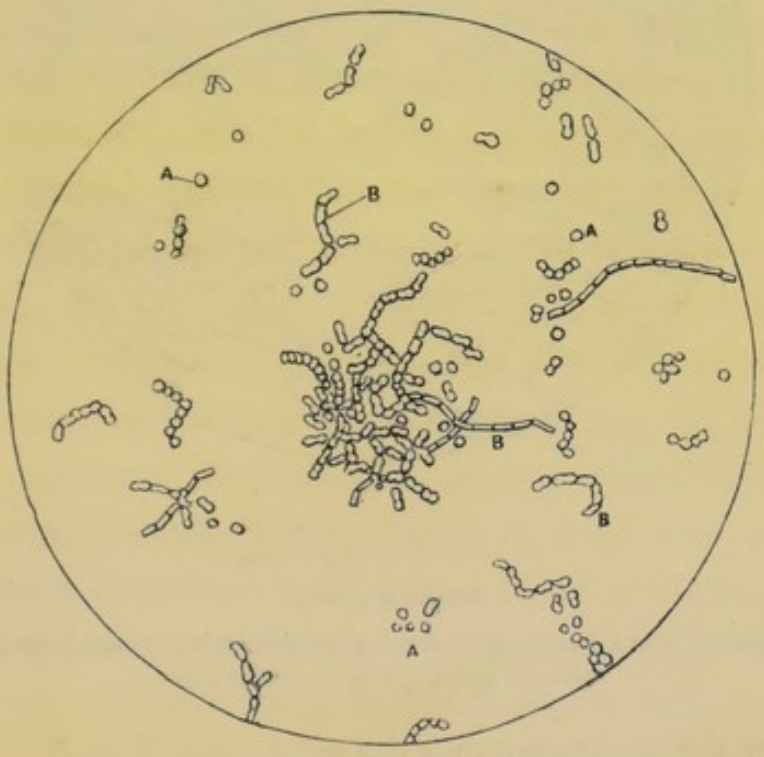
Fig. 2.

Favus cup. A, A, amorphous envelope; C, favus matter; B, B, hairs traversing the favus cup.—(Robin.)

prominent, this epidermic covering is ruptured. Independently of this, however, each crust is enveloped in a capsule, in structure quite amorphous, and within it is

inclosed the true favus matter—see Fig. 2. When a little of it is broken up and examined microscopically, it is found to consist of a vegetable formation, to which the name Achorion Schönleini has been given, in compliment to Schönlein, the discoverer of the fungus. It consists of numerous little oval or rounded bodies, called spores or sporules, having a diameter of about the $\frac{1}{3000}$th of an inch —see Fig. 3.

Fig. 3.

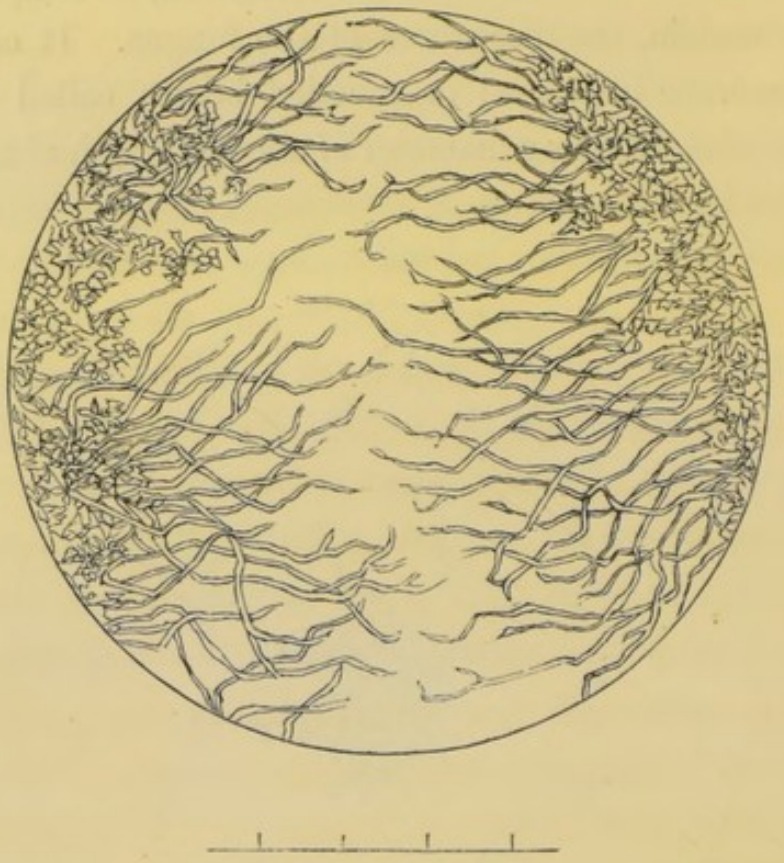


Fungous matter from a favus crust.· A, A, A, the isolated spores; B, B, B, chains of spores.

Besides these there are numerous tubes—see Fig. 4—many of them branched, some simple, others jointed, as if originally formed by a number of sporules united together at their ends. This, however, is not the case, for it is the sporules which are formed from the tubes,

although these latter are originally derived from the sporules, and this mode of reproduction is beautifully

Fig. 4.



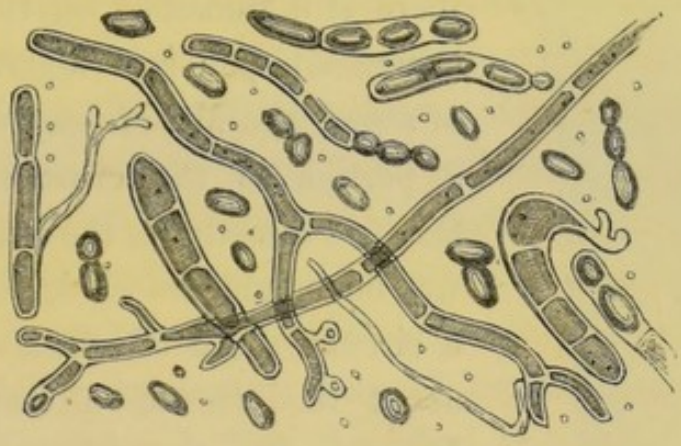
1000ths of an inch.

Fungous matter from a favous crust—showing branching tubes running inwards from the epithelial scales, spores, &c., at the edges.

seen in the accompanying drawing—see Fig. 5. Sometimes little granules or nuclei are seen in the interior of the spores. The tubes are very variable in diameter (from about the $\frac{1}{600}$th to the $\frac{1}{1500}$th of an inch). On examining the hairs in this disease many of them are found to be impregnated with the parasite, although not to such an extent as in tinea tonsurans—see Fig. 6. It is surpris-

ing that there are some dermatologists who yet insist on the non-parasitic nature of favus, notwithstanding the positive information which the microscope affords us. But all doubt as to the true cause of favus is set at rest at once by the results of inoculation of the

Fig. 5.

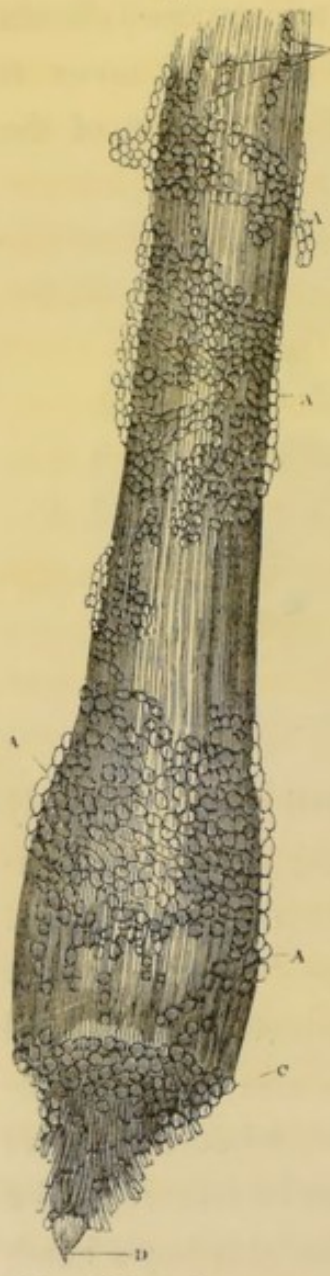


Showing the mode of reproduction of the achorion.—(Bennett.)

favus matter, which has been practised very frequently of late, and often with success—among others, by Bennet, Hebra, Remak, Vogel, Bazin, Gruby, and Deffis. Bennet thus describes a case in point:—"In the summer of 1845, one of the gentlemen in attendance at the Royal Dispensary volunteered to permit his arm to be inoculated. A boy, called John B., aged 8, labouring under the disease, was at the time the subject of lecture, and a portion of the crust, taken directly from this boy's head, was rubbed upon Mr. M.'s arm, so as to produce erythematous redness, and to raise the epidermis. Portions of the crust were then fastened on the part by strips of adhesive plaster. The results were regularly examined

at the meetings of the class every Tuesday and Friday. The friction produced considerable soreness, and, in a few places, superficial suppuration. Three weeks, however, elapsed, and there was no appearance of favus. At this time there still remained on the arm a superficial open sore about the size of a pea, and Mr. M. suggested that a portion of the crust should be fastened directly on the sore. This was done, and the whole covered by a circular piece of adhesive plaster about the size of a crown-piece. In a few days the skin surrounding the inoculated part appeared red, indurated, and covered with epidermic scales. In ten days there were first perceived upon it minute bright yellow-coloured spots, which, on examination with a lens, were at once recognized to be spots of favus. On examination with the microscope a few of the cryptogamic jointed tubes could be perceived. In three days more the yellow spots assumed a distinct cupped shape, perforated by a hair; and in addition to tubes, numerous sporules could be detected" (a).

Fig. 6.



Hair with favus fungus. A, A, chains of spores projecting beyond the edges of the hair; B, spores between the fibres of the hair; C, D, broken up root end of the hair, with masses of spores between the laminæ. —(Küchenmeister.)

Of three cases inoculated by Deffis, the epidermic variety of favus—the crusts exhibiting the achorion microscopically—was produced twice, and a typical favus cup once, and the average period of incubation was ascertained to be about forty days. The true favus cups are only formed when, by inoculation, some of the fungus can be brought into contact with a hair-follicle; hence the epidermic variety is more frequently produced. Gruby also tried the effects of inoculation. He deposited some of the fungus on the bark of an oak in full vegetation, and there developed itself a favus cup identical with that which grows on the head of infants (b). Favus is a disease not uncommonly met with in the lower animals, and the following interesting case of transmission from a mouse to a cat, and from the latter to two infants, was communicated to Bazin by Mr. Draper of New York:—

"In the course of the year 1854, several members of a family, amongst whom was a young physician, remarked that several mice, caught in a trap, were affected with a peculiar disease. Upon the head and front legs there were crusts of a sombre yellow tint, of a regularly circular form, and more or less elevated above the level of the neighbouring healthy parts. A manifest depression was likewise detected in the centre of each crust, just as one observes in porrigo favosa, and the parts, where these had fallen off, were ulcerated, and the skin appeared to be destroyed throughout its whole thickness. These mice were given to a cat, which exhibited some time afterwards, above the eye, a crust similar to those on the

mice. Later still, two young children of the family, who played with the cat, were successively affected with the same disease; yellow circular crusts making their appearance on several parts of the body, on the shoulder, face, and thigh. The physician who was summoned pronounced them to be cases of porrigo favosa" (c). Some of the fragments of the crusts were sent to Bazin, who detected the parasite with its characters well marked. These facts are surely sufficient to prove that favus is essentially a parasitic disease, and, moreover, that it is very contagious. Instances of its contagious nature are to be met with frequently in large hospitals devoted to skin-diseases, such as the St. Louis. Patients affected with it communicate it to those next them, or to their play-fellows, unless great precautions are taken. One of the last cases of favus which I had the opportunity of seeing, was that of a poor woman whose head was perfectly bald, her scalp smooth, dry, and parchment-like when pinched up, while here and there a cup-shaped favus crust was seen. This woman was accompanied by two children, both of whose heads were covered with lice, and the elder of the two had, in addition, well-marked favus crusts all over the scalp. There was no doubt that the mother, in this case, infected her child; and it appears to me equally certain that the infant would also have become affected in process of time had appropriate treatment not been adopted. This case forms a good illustration of the predisposing causes of favus, which I now consider. Age has considerable influence. Thus

we find the disease generally in children; more rarely in infants and adults. Hence the probable reason why the infant above alluded to was not affected.

But the most powerful of all the predisposing causes is *dirtiness*. I know well that I am thus stating what is contrary to the opinion of many dermatologists who consider scrofula to be by far the most essential predisposing and of others who look upon it as the sole exciting cause; thus denying altogether the parasitic nature of the disease. Now, it cannot be denied that the children affected are *often* scrofulous; but at the same time it is equally certain that they are *always* dirty. This accounts for the fact that favus is rarely, if ever, met with in the upper ranks of life; and, as Hebra remarks, no child, be it ever so scrofulous, will take favus, provided it is cleanly. Independently of the communication of favus from one person to another, it may occur primarily, and this primary development is thus described by Hebra:—"It has long been known that the quantity and diffusion of fungous growths is immense, and that these, on account of their smallness and lightness, are carried in the air, and deposited along with the dust. One requires only to desist from cleaning a glass plate, or any other smooth surface, for some time, after which many of these can be detected upon it with the microscope. . . . Since now such germs are everywhere present, it is evident they will undergo further development where a suitable soil for germination is afforded to them. . . . In order to further their development, repose and a certain

temperature and moisture are necessary. An example from every-day life makes this quite clear. If one leaves an ink-bottle at rest for some time, there is soon a development of fungous matter to be seen, while this does not form if it is in constant use. The same is the case in favus. In cleanly, well-to-do people, as well as in children who receive a rational physical education, favus never makes its appearance, but only among persons living in dirtiness and misery, in whose cases the combing and cleaning of the hair is neglected" (d). The soil favourable to parasitic growth is thus afforded, and fungous matter deposited on the head along with the dust, takes root and germinates.

There are a good many dermatologists, and among them Devergie, who believe in the spontaneous generation of parasites on the bodies of persons in great poverty, who are thus obliged to make use of bad food, and who are very dirty. Devergie supports his opinion by the fact that the parasitic affections of the skin are sometimes cured, or at least disappear, on using internal medicines. It cannot be denied that such cases do occur; but it can as positively be affirmed that they are very rare. And there seems no reason for doubting that some medicines, by changing the qualities of the blood, may act as poisons to the parasite, or, to use a milder expression, may change the nature of the soil which had previously been favourable to its germination. It seems quite absurd to suppose that there should be spontaneous generation of the lower any more than of the higher animals and plants; for it is

well known that in the latter no such thing takes place, and it seems to be very paltry reasoning to argue spontaneous generation of the former merely because (they being so small) we cannot follow the phases of their development so well as in the case of animals and vegetables higher in the scale. The powerful influence of dirtiness in the production of favus has already been mentioned, and, with all deference to the distinguished dermatologist just quoted, the spontaneous generation of the parasite ought never to be looked upon as an exciting cause of the disease under any circumstances whatsoever.

It will be seen, therefore, that I consider the application of the parasite either by contagion, by inoculation, or by transmission through the air, to be the sole exciting, and dirtiness (especially in children) to be the sole predisposing cause, of this loathsome and hitherto incurable disease.

(a) Clinical Lectures. Second Edition, p. 799.

(b) Traité Pratique des Maladies de la Peau, par Alph. Devergie. Second Edition, p. 526.

(c) Leçons Théoriques et Cliniques, sur les Affections Cutanées Parasitaires: par le Docteur Bazin, (1858), p. 119.

(d) Allgemeine Wiener Medizinische Zeitung, for 1858, p. 12.

CHAPTER IV.

HAVING disposed of the symptomatology of favus, and given a short sketch of its causes, predisposing and exciting, I come now to its *diagnosis*, which, in the majority of instances should be very simple.

In cases where the head is more or less covered with an eruption exhaling the odour of mice, and consisting of bright yellow dry crusts depressed in the centre, through the middle of each of which one or more hairs pass, which have a dull, dry appearance, and are more easily extracted than natural, the diagnosis is very easy; and those who have seen the disease once can never mistake it. When it has continued for a length of time, when the crusts have lost their cup-shaped form and their bright yellow colour, and have become entangled in the hairs; when, in fact, we have to do with the variety described as favus squarrosa, it may be—and often is—mistaken for *impetigo* of the scalp. But in the former there are generally patches of alopecia, which are wanting in the latter. In it certainly the hairs often fall out, although only here and there, and not in patches as in favus. The alopecia of favus is permanent, that of impetigo generally temporary. There is also no alteration of the hairs in the latter; in the former they are dull, dry, discoloured, and easily extracted. Attention to these

points generally serves to clear up the diagnosis; but if doubt still exists, it may at once be removed by the microscopic examination of the crusts. There is one point, however, which requires to be borne in mind, namely, that the discovery of some pustules does not prove that the disease is impetigo, as pustules are frequently developed in cases of favus from the irritation of the parasite. And also one should not lay too great stress on the value, in a diagnostic point of view, of the odour exhaled from the eruption; as this symptom is not so pathognomic as some dermatologists would have us to suppose.

Very often the diagnosis is rendered difficult on account of a propensity of parents to clean carefully, and remove all the crusts from the head before bringing their children for advice. There is then to be seen redness of the scalp combined with the presence of a few pustules, the results of irritation, and here again the disease resembles impetigo. But if it is a case of favus which we have before us, the deep red, depressed, distinctly circumscribed surface, covered by a thin, shining epidermis, is quite different from the light-coloured, diffused redness of impetigo. If this is not sufficient, the hairs should be examined, when they will be found to be altered, and the parasite is detected in them with the microscope. If this is not satisfactory, do not give an opinion, or resort to any treatment, but desire the patient to return in a couple of weeks, leaving the head untouched in the *interim*, after which time the disease will have had

time to re-develope itself, and its nature is at once discovered.

Psoriasis of the head might in some cases be mistaken for favus, when this latter is not well marked. But in the former there is no alteration of the hairs, very little alopecia, and no peculiar odour. The crusts, also, are much whiter, are more adherent than in favus, and the characteristic silvery scales of psoriasis are generally to be detected on other parts of the body, and especially on the elbows and knees; for psoriasis confined to the head is rare. In doubtful cases the microscope at once determines the nature of the affection.

Favus attacking the hair-follicles of the body is easily detected, as the crusts invariably assume the cup-shaped form, and the epidermic variety of the disease, and favus of the nails, if not overlooked altogether, are easily diagnosed, provided always that we keep in mind the characters pertaining to each, as given above, and do not forget the fact that they occur, almost invariably, secondarily to the favus of the hair-follicles.

The *Prognosis*, which in former times was very serious, owing to the supposed incurable nature of the disease, is now, on the contrary very favourable; for it has been satisfactorily proved that, by the aid of the treatment about to be recommended, a cure, even of the very worst cases, can invariably be effected. If treated in its early stages, recoveries take place without leaving the slightest deformity; but when the treatment has commenced after the disease has lasted a length of time, the alopecia and

the atrophy of the scalp which it produces can never be removed.

Treatment.—It can easily be imagined that a disease such as favus, which can be traced back to the remotest ages, and which till of late was deemed incurable, should have called forth very varied and opposite principles of treatment. Some considered it to be essentially a constitutional, in fact a scrofulous affection, to be removed by constitutional treatment only; others were of opinion that it was purely a local disease to be removed by topical applications alone; while a third party looked upon it as a disease partly local and partly constitutional, and attacked it both by local and general remedies. The local treatment has, however, at all times and in all countries, played a more important *rôle* than the constitution. When no treatment is adopted, it is very rare indeed that the disease disappears, unless after it has destroyed every one of the hair-follicles of the scalp and produced a permanent alopecia. But even then, it may continue to flourish on other parts of the body. When left to itself it generally lasts, more or less extensively, during the whole life of the person affected.

The effect of an acute intercurrent disease, a typhoid fever for example, on the favus affection is very curious. During its continuance the achorion does not flourish, but fades as plants do when the soil in which they are planted is not supplied with moisture or is otherwise inappropriate; and it only assumes its pristine vigour after the disappearance of the fever.

Without entering at present upon the discussion of the principles of treatment generally put into force in this country, I shall first of all describe what I consider the best means to be employed in the majority of cases, and which, having been adopted by the French school, and especially advocated by Bazin and Hardy, have been carried out with excellent results. The basis of this treatment follows as a corollary to what has already been stated with regard to the nature of the disease, that is to say, considering, as I do, that its essence consists in the presence of a parasite, I hold that its destruction is the *sine quâ non* of the treatment. But it has also been hinted at, that some states of the system seem to prepare a soil more favourable for the vegetation of the fungus than others (although unfortunately their nature is not yet thoroughly understood), so that it becomes necessary not only to take means to destroy the parasite, but also to alter that peculiarity of the constitution which forms a predisposition to the disease. We have therefore to put into practice an external treatment for the destruction of the exciting, and an internal for the removal of the predisposing cause; and this leads me, firstly, to the external treatment.

Everyone knows that there are various medicines capable of destroying vegetable parasitic life, and it might be supposed that their application alone would suffice to cure the disease; but, in order that these remedies be efficient, it is necessary that they be brought into immediate contact with the parasite. This, however, cannot gene-

rally be done; for, as previously shown, the parasite penetrates into the interior of the hairs and is found imbedded between their longitudinal fibres. It is therefore necessary to remove the hairs in addition to applying parasiticide remedies. It is altogether useless to shave off the hair as many do, for we thus leave, imbedded in their follicles, those parts of them which are loaded with spores. Were shaving sufficient it would be very convenient, being so easy of performance; but nothing short of complete extraction is effectual. It may seem, to those who have not tried it, to be somewhat superfluous to give directions as to the mode of extracting the hair. The difficulty of the process, however, cannot be overrated, and many who have tried it have failed in curing the disease, and are therefore opponents to this method of treatment; but in these cases the fault generally lay not in the principles of treatment, but in the inefficient manner in which they were carried into practice. Many may, no doubt, call to remembrance my statement, that in this disease the hair is more easily extracted than healthy hair; but I meant by this that, owing to the ravages of the parasite in the hair-follicles, the bulbs of the hair become less firmly attached than healthy ones. For I must also call to remembrance another fact, namely, that the hairs become very brittle as the diseased process advances, and therefore, on attempting to extract them, those most diseased often break, leaving their unhealthy bulbs imbedded in the follicles. In fact, the physician finds the same difficulty in the extraction of the hair as

does the dentist in the extraction of a tooth, which, though loosely imbedded in its socket, is so much decayed as to break readily on the application of the forceps. It may seem a somewhat cruel thing to propose the removal of all the hairs from a surface which is often very extensive; but it is only in exceptional cases, where the sensibility is greatly exalted, that much pain is experienced, and in the majority of instances patients soon become accustomed to it, and, seeing the benefit resulting from it, are only too anxious to have it continued. Besides, even were the pain considerable, this is no argument against it provided it be successful. No physician abstains from a useful drug merely because it is nauseous, and no surgeon withholds the knife on account of its causing pain. And also, when depilation causes much pain, a little chloroform may be given to deaden the sensibility; but cases requiring its use must be very rare indeed. Many physicians also, who object to depilation, have no hesitation in applying the most powerful caustics; but I am very far mistaken if most people would not prefer the former to the latter, were it only on account of the less degree of pain produced, apart altogether from the results of these different modes of treatment.

There are three modes of extracting the hairs—

1*st.* Extraction by means of the fingers.

2*nd.* Extraction by means of the forceps.

3*rd.* Extraction by means of the calotte.

The extraction with the fingers is the method adopted by the Frères Mahon, combined with combing and

brushing the affected parts; but this process has not met with that success which might have been expected from it, and even the Frères Mahon do not now hesitate to make use of the forceps when the above method fails. The extraction with the forceps, then, is much the most successful, and to this process I now direct attention.

It is not all kinds of forceps which are suitable for this little operation—see Fig. 7. They should be about three inches long, and should not have a strong spring, otherwise the hand becomes almost at once fatigued on using them. They should be made so that the two extremities come together very exactly, and do not slide the one upon the other. Each extremity should be a couple of lines broad, so that a fasciculus of hair may be caught up at one time when required, and should be furnished on the inside with denticulations after the manner of a file. It is of great moment that the denticulations be very fine and also blunt, else the brittle hair may be cut across by them, and they must of course be arranged transversely, for the hairs would slip through between them if they had a longitudinal direction. Forceps such as these are made by Mathieu (a), expressly for depilation, and are used by Bazin and others at the St. Louis Hospital. (They may also be had from Mr. Hilliard, instrument

Fig. 7.

Forceps for depilation.

maker, 65 Renfield Street, Glasgow.) Some direction is also required with regard to their use. Care should be taken not to catch more than half a dozen hairs at the most, at one time, and even these must be in close proximity to one another. It is necessary also to avoid extracting them, except in the direction of their axis, else they are very apt to break, their roots remaining still imbedded in the hair-follicles, and the benefit which would otherwise have accrued from the depilation would not be obtained. At the same time as the depilation is carried on, a parasiticide should be applied, that is to say, after clearing about a square inch of surface of all its hair, one of the ointments or lotions about to be mentioned should be rubbed in. This is very useful, for the parasiticide thus penetrates into the hair-follicles whose orifices are more patent immediately after the extraction of the hairs, and is brought into direct contact with, and acts upon, the spores which remain.

If the diseased surface is not very extensive, all the hairs can be removed at one sitting, as in the following cases cited by Deffis in a pamphlet bearing this eminently French title—"Refutation of the Errors which M. Devergie's book contains:"—

"March 16, 1854—Léon Dufour, aged 6 months. Two cup-shaped favus-crusts on the back part of the head—cured in a single sitting, on the 16th March, 1854.

"December 9, 1854—Julie Laporte, aged 10 years. One favus-cup on the summit of the head—cured in a single sitting, on the 9th December, 1854.

"March 30, 1855 — Alfred Hubert, aged 6 years. Four small favus-cups on the scalp—cured in a single sitting, on the 31st March, 1855." (b)

As a general rule, as much as three or four square inches of surface, covered by hair, can be removed daily; so that, were it necessary to remove the whole of the hair from the scalp, this might be done in a week or so. But the extent of surface capable of being cleared at one sitting, will depend entirely on the patient; those who have very sensitive skins, being very intolerent of depilation, in which cases we must be content with slower progress, the depilation extending over a period of two or three weeks, according to the degree of intolerance, and the amount of hair to be removed. In France, where this treatment first assumed a definite form, great stress is laid on the manner in which the depilation is performed; and, indeed, in the St. Louis Hospital, servants are employed (*épileurs*, as they are called), whose whole duty consists in extracting the hair of those patients affected with vegetable parasitic diseases.

Their *modus operandi* is thus described by Bazin:— "Our depilators are seated, and cause the head of the patient to rest upon their knees. With one hand (generally the right) they hold the forceps as one holds a writing-pen; the other hand is applied to the part about to be depilated, with the thumb and index finger of which they put the skin on the stretch to keep it steady. They then extract the hairs, pulling them out in the direction of their axis, and only a small number at a time, two,

four, six, or at most a small bundle. It is necessary to avoid depilating too quickly or too gently, there being an intermediate point which one can only arrive at after a little practice." (c)

Before commencing the extraction of the hairs it is of course necessary to cut them short, say within half an inch of the skin, and by means of poultices to remove any crusts which may have formed, and are matting the hairs together. Bazin also recommends the application of a layer of the oil of cade, which he says "destroys, in part, the parasite situated on the surface of the skin, extinguishes the sensibility of the scalp, and facilitates the extraction of the hairs." Did the oil of cade fulfil these conditions, it would certainly be of great value in the treatment by depilation. That it destroys some of the spores no one can doubt; but, from what I have seen of this practice, I would be very chary indeed of admitting that it in any way deadens the cutaneous sensibility, or facilitates the extraction of the hairs.

A question of great importance is, *When should the depilation be stopped?* There is no doubt that one depilation would be sufficient were all the hairs removed entire, and the parasiticide efficiently applied; but there is great difficulty in removing all of them, owing to their friability, and the depilation thus requires frequently to be repeated. Each successive depilation, however, becomes less serious, for we generally notice, after one extraction, that the disease is extinguished at some parts, and reappears only here and there, at those places,

namely, where the hairs have broken in attempting to remove them. It is only these latter parts then which call for a repetition of the operation. After a little experience one can readily distinguish when the disease is eradicated, and when the treatment can be dispensed with. When the hairs shoot out with all the appearance of health, after depilation, their previous friability and twisted appearance being gone, and when the skin assumes its natural appearance, we can then withhold the forceps, and confidently expect a permanent cure. It must, however, be borne in mind that, long after the spores have been destroyed, secondary symptomatic eruptions may continue which do not require further depilation, but treatment founded on general principles, and varying according to the nature of the eruption. It requires very little clinical experience to distinguish the symptomatic eruptions from those peculiar to the parasitic affections.

The treatment may extend over a period of from six to eighteen weeks, especially if the disease is at all extensive and the epilator not very experienced; but in this time the most obstinate cases should be radically cured; and this is what can never be effected under any other treatment whatsoever. I am well aware that in hospital practice many physicians are content with removing the crusts, and applying stimulating washes, attending to the general health, and dismissing the patients with clean heads, and apparently cured, after a couple of weeks treatment; but these are not instances of cure

at all, for whenever the local applications are stopped the crusts reappear.

The extraction of the hairs by means of the calotte has long been celebrated, and is still practised in France to a considerable extent. This consists of a plaster which is prepared in the following way:—"About four ounces of rye-flour are mixed with a pint and a half of white vinegar in a pan, this is then put on the fire, and the mixture stirred continually; to it, when it boils, is added half an ounce of the carbonate of copper in powder. The whole is then boiled for an hour, after about which four ounces of black pitch, six of Burgundy pitch, and four of resin are added; when thoroughly mixed and melted, about six ounces of antimonial ethiops are put in, and the mixture is stirred continually, till it has assumed a suitable consistence. This plaster is then spread upon strong cloth." (d) It is employed thus:—The hair is cut as short as possible, the crusts removed by means of cataplasms, and the plaster applied in strips so as to fit the head accurately. It is left on for a few days, so that the hairs in growing become firmly adherent to the plaster. The end of each strip is then seized and suddenly and forcibly removed, dragging along with it a number of the hairs. This operation is repeatedly performed, and extends over a period of several months in many cases. The practice has sometimes proved successful; but only so when, by it, the whole of the diseased hairs are removed; but unfortunately, in many cases, this cannot be accomplished, and in too many others the operation is

too painful and cannot be borne, and instances of death from this cause have been recorded. It is adopted, however, by Baumès of Lyons, and by the sisters of charity at Toulouse, in which town, curious to relate, the municipal administration has interdicted the physicians from treating favus, the care of the children so affected being confided exclusively to the sisters of charity. This absurdity is carried to a great extent in Paris also, where the St. Louis Hospital counts the Frères Mahon (the quacks) among the medical staff. This was somewhat excusable many years ago, for then the parasitic affections of the head were certainly better treated by them than by others; but now that the treatment proposed by Bazin and adopted by Hardy is proved to be better than that of the Frères Mahon it seems to be highly improper, and a great insult to the distinguished physicians of that hospital, that such charlatans should still be retained in office. For of all kinds of quacks those are decidedly the worst, who, having discovered a useful remedy for a loathsome disease, prevent the public from profiting by it, retaining it as a secret, for the purpose of advancing their own interests and filling their own pockets. The process of the Frères Mahon is somewhat the following:—The hair being cut short and the crusts removed by poultices and soap and water, *a marvellous powder* (to use Bazin's expression) is applied and the hairs are then removed by combing, and by pulling out as many as possible with the fingers. Bazin remarks that the epilation by this means is often impossible, in which case they (the Frères Mahon)

have no scruple in having recourse to his method of epilation with the forceps. According to the analysis of Chevallier, the depilatory powders of Mahon consist principally of slacked lime and the subcarbonate of potash. (e)

The method of removing the favus crusts before proceeding to epilation is by the use of cataplasms, or by the application of oil, which softens them, and causes them to swell and lose their attachments to the skin, after which they may be scraped off with a spatula. This is the method adopted by Hebra. Instead of oil, he sometimes makes use of alcohol, which has exactly a contrary effect on the favus crusts, causing them to shrink, and thus lose their attachments, when they fall out, or are removed with the spatula.

It now remains to make some mention of the best parasiticide applications. Of these the bichloride of mercury is one of the best, and the one most generally used; oil of cade and Turbith mineral are much employed in France. Sulphur is also good, although more successful in the destruction of the animal parasites. As for the excipients, water and glycerine are probably the best. Lard is also good, provided that care be taken to get it fresh, and not to keep it too long; for if rancid lard is applied to the affected parts, it favours in a wonderful manner the formation of secondary eruptions. The strength of the parasiticide to be used is a point of great importance. Two grains of the bichloride of mercury to an ounce of water is sufficiently strong, and a little

alcohol or muriate of ammonia should be used to facilitate the solution of the mineral. Sulphur is best used in the form of ointment, in the proportion of half a drachm to a drachm of sulphur to the ounce of lard. Turbith mineral is usually employed in the same proportion, and lard is the general excipient. Oil of cade may be mixed with glycerine or lard in the proportion of half a drachm to a drachm in an ounce of the excipient.

Küchenmeister made a series of very interesting experiments, in order, as he says, "to test the parasiticidal effects of the most urgently recommended remedies," and he found that alcoholic solutions acted most powerfully in this manner:—At his request applications of alcohol were made to the heads of some patients affected with favus by Hebra, and apparently with great success. (f) Notwithstanding this statement of Küchenmeister's, I find in a later publication that Hebra considers the application of the so-called parasiticides as useless, there being, he says, no medicine which is known to act in this way. (g) This opinion is not shared, however, by most dermatologists.

Whichever of these parasiticides is employed, must be rubbed into the skin during each depilation, as previously mentioned; and after the depilation is completed, and the disease apparently cured, it should be continued for some time.

Bennett, who is of opinion that the disease is parasitical, but occurs in scrofulous constitutions, recommends the use of cod-liver oil internally. Locally, also, after the

removal of the crusts with poultices, he applies cod-liver oil, which, as he says, by excluding the air causes the death of the parasite. I am told, however, by my friend, Dr. Stewart of Edinburgh (formerly Dr. Bennett's clinical assistant), that this treatment is merely palliative, and certainly the cases cited in Dr. Bennett's valuable work on Clinical Medicine (second edition, pp. 790—794) are not very encouraging.

After what has been said, it will be seen that the local is the only treatment capable of effectually curing favus; but at the same time, in this, as in all local diseases, the general health must be attended to, and any deviations from a natural state corrected when possible. Cleanliness must, above all, be insisted on, combined with the use of good food, and the enjoyment of exercise, pure air, etc. The principles of treatment above sketched out are always efficient in curing even the worst cases of favus; and we hope that, as it comes more extensively into practice, cases of favus described as incurable will cease to be recorded, for since the depilatory treatment of Bazin has been instituted, the word incurable when applied to favus, has become quite inapplicable.

The remarks above made apply to favus attacking the hair-follicles. In the epidermic variety depilation is not so necessary, the application of a parasiticide lotion as a solution of the bichloride of mercury (two grains to the ounce of water) being usually sufficient to remove it. When the disease attacks the nails, the treatment is also simple. It is necessary to destroy gradually by means

of a small file the portion of nail covering the favus matter, and after arriving at it, the application of a parasiticide is quite sufficient to destroy the fungous growth.

(a) L. Mathieu, 28 Rue de l'Ancienne Comédie, Paris.

(b) "Refutation des Erreurs que contient le livre de M. Devergie," par M. Deffis, p. 27, Paris, 1857.

(c) "Leçons théoriques et cliniques sur les Affections Cutanées Parasitaires" professées, &c., par le Docteur Bazin. Pp. 79. Paris: 1858.

(d) "Traité Pratique des Maladies de la Peau." Par Alph. Devergie: p. 533.

(e) "Traité Pratique des Maladies de la Peau et de la Syphilis." Par. C. M. Gibert. Third edition, vol. i. p. 343.

(f) Küchenmeister's "Manual of the Animal and Vegetable Parasites." Sydenham Society's Translation. Vol. ii. p. 258.

(g) *Allgemeine Weiner Medizinische Zeitung* for 1858, p. 31.

CHAPTER V.

TINEA TONSURANS.

(*Disease due to the presence of the Tricophyton.*)

Tricophytie (Hardy), Teigne tonsurante (Bazin).

The name Tinea tonsurans is sometimes employed to denote the common ringworm of the scalp only; but, following Bazin's nomenclature, I include under this denomination, not only ringworm of the scalp (herpes tonsurans), but also the other two varieties of the same parasitic disease, namely—ringworm of the body (herpes circinatus) and ringworm of the beard (sycosis).

Why now, in opposition to the belief of the most celebrated dermatologists of this country, do I affirm that herpes circinatus, herpes tonsurans, and sycosis, are merely varieties of one disease, which I call tinea tonsurans? For two reasons simply:—

1. Most of those who have devoted themselves specially to the microscopic characters of the vegetable parasitic diseases, Robin, Bazin, Hardy, etc., agree in the opinion that these three affections are essentially parasitic in nature, and further, that the same parasite is found in each.

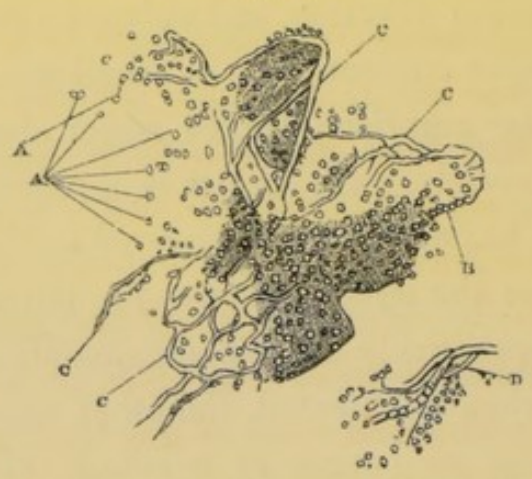
2. I have clinically confirmed what was first pointed out by Bazin, that these three affections are often met

with in connection with one another, and that one variety is capable of giving rise to another by contagion. I cannot conceive how dermatologists come to rank herpes circinatus along with herpes zoster; the only resemblance or connection being in the name, which, derived from ἕρπειν, to creep, is admirably adapted to designate the circinate disease, attacking as it does at first one small spot, and gradually extending and involving large portions of the cutaneous surface in its course, but quite inapplicable to the zoster affection, and only tolerated from long custom. Herpes circinatus, as we shall see, is not generally a vesicular eruption; herpes zoster always exhibits large typical vesicles; the former is a parasitic affection —no parasite has ever been discovered in the latter; the former assumes the circular form—the latter never; the one is a comparatively chronic inflammation of various continuance when not treated, the other an acute inflammation running its course in a couple of weeks, and almost always accompanied by neuralgic pains, lasting an indefinite period. In fact, no two diseases can be more different; and this is just one of many instances of an improper nomenclature, leading to an erroneous classification and erroneous notions.

But, returning to the proofs of the identity of the three affections, herpes circinatus, herpes tonsurans, and sycosis, let us first examine the microscopical appearances. In all three affections, in placing the excreted *debris* under the field of the microscope, after adding caustic potash to separate the epithelial scales, innumerable little rounded

or oval globules or spores, about the 7000th of an inch in diameter, are distinguished. Many of these are isolated, others are united together into chains. Comparatively few cryptogamic tubes are to be seen. The sparing development, then, of tubes, and the enormous number of spores are characteristic of all three affections, and distinguish them from the vegetable structures found in other parasitic diseases—see Fig. 8. These statements

Fig. 8.



Fungous growth from a case of Tinea tonsurans. A, A, Isolated spores; B, Spores united at their ends; C, C, C, C, Empty tubes; D, Sporular tube.—(Bazin.)

are confirmed by the investigations of Robin, Bazin, Hardy, Deffis, and others, and the parasite which was discovered by Malmsten in 1845, is denominated the tricophyton. The alteration of the hairs, and the disposition of the fungus in their interior will be treated of when I come to discuss herpes tonsurans and sycosis in detail.

But the clinical proofs of the identity in nature of all three varieties of tinea tonsurans are even more satisfac-

tory ; for it requires a first-rate microscope, great dexterity in the use of it, and considerable experience of parasitic affections, to demonstrate the existence of the fungus in an accurate manner, whereas the proofs derived at the bedside are patent to all who have an opportunity of witnessing them. In patients affected with herpes tonsurans (ringworm of the head), patches of herpes circinatus (ringworm of body) are frequently seen on other parts of the skin, and more especially on the neck, in the neighbourhood of the herpes tonsurans. And what is more conclusive, is the fact that patches of herpes tonsurans sometimes extend from the scalp to the neck, in which case the segments on the latter situation assume all the characters of herpes circinatus. In a very able paper on tinea tonsurans, by Dr. Jenner, in the *Medical Times and Gazette*, for November 27, 1858, it will be seen that he also has observed cases of this kind, and has also detected the parasite in the patches of herpes circinatus, as well as in herpes tonsurans; but on reading a little further, I am astonished to see that Dr. Jenner's conclusion is that herpes circinatus and herpes tonsurans are distinct diseases. I am very much mistaken, however, if those who read attentively Dr. Jenner's remarks, do not arrive at a conclusion exactly the opposite of his.

In an excellent clinical report of Tinea tonsurans (*Medical Times and Gazette*, January 12, 1861), Hutchinson states that he once, in examining, with the microscope, the parasite from a case of herpes tonsurans, inoculated himself by mistake, and there resulted a well

defined patch of herpes circinatus on one side of the neck. In cases of sycosis (say sycosis of the chin, for it is also met with on the Mons Veneris, upper lip, etc.) patches of herpes circinatus are extremely often met with on the neck, and in many cases segments of herpetic circles extend round the front of it from ear to ear below the beard. In sycosis also I have more than once found the external aspect or back of the wrist or hand the seat of herpes circinatus, owing to the patient rubbing the itchy and diseased portions of the chin with these parts, and thus causing the transmission of the parasite. And the reason why the right wrist is more frequently affected than the left is, that most people are right-handed, and accordingly use more frequently the right wrist in rubbing the itchy chin.

I have never had the opportunity of witnessing herpes tonsurans and sycosis on the same patient; but this is owing to the fact that the former almost invariably attacks children, while the latter is necessarily confined to adults. Instances, however, have been noticed of grooms being attacked by herpes circinatus and sycosis, after grooming horses affected with herpes tonsurans. It is probable that in these cases the grooms first contracted herpes circinatus and afterwards sycosis; so that here we have cases of transition from one to the other of all three affections. (a) Bazin thus reports a most interesting case of the communication of herpes circinatus from a horse affected with herpes tonsurans:—

"A dragoon came to the dispensary of the St. Louis

Hospital affected with herpes circinatus of the front of the right forearm; the skin of one of the patches was denuded of hair. He stated that five or six of his comrades had contracted this affection, as well as himself, from grooming diseased horses. We went to the barracks, where, sure enough, we saw three horses which exhibited round patches, absolutely identical with those of herpes tonsurans, on the withers, shoulders, back, and belly. The hairs in the centre of each patch were broken off close to the skin, and there was, as in herpes tonsurans, a whitish, squamous, and even crust-like production which was traversed by the hairs. The presence of spores was detected with the microscope. The dragoon, who conducted us to see the horses, showed us also his young daughter, eight or ten years of age, the side of whose nose exhibited a patch of herpes circinatus."

What, then, can be more conclusive than the identity in nature of these three affections? This identity is still further proved by the similarity of many of the symptoms of each; and this leads us to the general characters pertaining more or less to all the varieties of tinea tonsurans.

These are divided into three stages by Bazin, a surgeon whose labours have done far more than those of any other to elucidate the nature and treatment of this previously complicated disease; who was the first to describe herpes circinatus, herpes tonsurans, and sycosis, as varieties of the same affection; and from whom I draw largely in these remarks.

In the first stage the itching is a very prominent

symptom, and may precede or accompany the primary eruptions. These latter are very various, the most frequent being of an erythematous or vesicular type. Pustules are not very common; and papules and squamous eruptions, though rare, form sometimes the first manifestations. But the circumstance of the greatest interest with regard to all these, and one of great importance in a diagnostic point of view, is the circular form which they almost invariably assume, although the reason for such a disposition is not at all known. The hairs also, where the skin is provided with them, undergo a very peculiar alteration; they are dry and dull, having lost their natural shining aspect. Their colour is different from that of the surrounding healthy ones, being reddish or greyish, according as the patient has light or dark hair. They are also frequently twisted, and being very brittle, have a great tendency to break at the distance of a few lines from the skin; and when the greater portion of them are thus broken, as in ringworm of the head, the diseased surface has the appearance of a tonsure. And those hairs which are diseased, but not yet broken, are very apt to give way on attempting to extract them.

In the second stage the itching generally continues; there is slight swelling also, and the integuments almost invariably assume a darker tint. The eruptions which existed in the first stage may still be present, or may be absent at some points, and present at others; but the principal symptom of this stage is the appearance of the fungus, which, previously embedded between the

epidermis and the derma, now shows itself on the hairs, and on the surface of the skin.

This parasitic matter, of a pure white colour and powdery aspect, is not to be mistaken for epidermic scales, which have a yellowish or grayish appearance, and which are much less in the form of powder; but if there be any doubt the use of the microscope should immediately dissipate it. When in abundance, the tricophyton covers the epidermis between the hairs, when these are present, and forms for the latter a complete white sheath, which is very characteristic. The fungus makes its way to the surface almost immediately after the rupture of the hairs, and this latter symptom appears to appertain partly to the first and partly to the second stage.

In the third, the parasite causes an inflammation of the hair-follicles and the surrounding tissues, and the pus thus formed, acting as a parasiticide, destroys its exciting cause, so that the fungus is now no longer, or only rarely to be found. From the extension of this inflammation pustules are produced, and even furuncles, and in the variety affecting the beard, profound indurations and large tubercles. In this stage, and in consequence of this inflammatory process also, the hair-follicles are either obliterated, and perfect baldness produced, or, and this is more common, their secretion is vitiated, as is seen by the development of reddish or yellowish hairs without capsules, and whose primary elements are no longer to be distinguished by the microscope. In this stage, therefore, although the parasite may be completely destroyed,

the disease is kept up by the irritation of the unhealthy hairs, so that epilation is just as necessary as in the previous stages when the tricophyton flourished in all its luxuriance. But more of this hereafter.

In a word, then, the first stage is chiefly characterized by the remarkably circular form of the eruptions, and by the alteration of the hairs; the second, by the change in the colour of the skin of the affected parts, and by the presence of the white, powdery fungus on the epidermis and on the broken hairs; and the third, by the inflammation and suppuration of the hair-follicles and surrounding tissues, and, in consequence, by the disappearance of the fungus, the alopecia (or the formation of hairs very much altered or diseased), and the secondary eruptions.

These three stages are not met with in all the varieties equally. Thus, when the disease affects the body, it never passes the second stage, owing to the small number of hairs, and the parasite dies, from want of nourishment apparently; while the third stage is most prominent when the fungus has taken up its residence in the chin, where the hairs are in abundance, and where the quantity of loose cellular tissue favours the formation of the characteristic tubercles and indurations. On the scalp, on the other hand, there is very little subcutaneous tissue, and there is consequently an absence of those profound indurations which are met with in sycosis.

I pass now from these general remarks on the symptoms of tinea tonsurans, to the special characters of each of its three varieties, and first, of—

HERPES CIRCINATUS.

Ringworm of the body—Herpès circiné—Erythema marginatum—Tricophytie circinée (Hardy).

Herpes circinatus is an affection frequently met with in this country. It commences usually by a little rose-coloured, slightly elevated spot, about the size of a four-penny piece, which becomes shortly the seat of slight furfuraceous desquamation, and is accompanied by itching and sometimes by a tingling sensation. This spot gradually increases in size by uniform addition to its circumference, so as still to retain its circular form; but as it extends circumferentially the healing process commences in the centre, so that in a short time we have a transformation of the small red spot into a large prominent erythematous ring inclosing a portion of sound skin. This process goes on for an indefinite period, the ring gradually increasing, till it may in some cases have a diameter of even four or five inches. Sometimes small vesicles or pustules form upon it; but this is the exception, and it generally retains the erythematous condition during the whole of its course, unless when subjected to inappropriate treatment. When herpes circinatus has lasted for some time, and has invaded a considerable extent of surface, the circle often becomes incomplete, the diseased process having terminated at some points, so that segments of circles alone are left. I cannot agree with those who describe a non-parasitic as well as a parasitic herpes circinatus, although this is the opinion of Hebra; and I

am of opinion also that herpes iris, generally described as a separate affection, is merely a variety of the parasitic disease, which is, however, very rare, and consists of a series of prominent erythematous circles, arranged concentrically. Although essentially parasitic in nature, and highly contagious, herpes circinatus may terminate spontaneously, the fungous growth having a very superficial situation, and the hairs being generally in small number and in a very rudimentary condition; so that it has not, so to speak, a sufficient hold upon the skin—as Bazin expresses it, "the parasite dies from want of nourishment." Sometimes only one circle of herpes is met with, but there are usually several; and cases are sometimes to be seen in which a number of rings are found on all parts of the body. The seats of predilection of the eruption are the face and neck, and, when in connection with and in consequence of sycosis, on the front of the neck, and on the back and outside of the wrist and hand.

The *diagnosis* of herpes circinatus is very simple. The history of the case and the appearance of the eruption; the elevated erythematous circles, or segments of circles, covered with furfuraceous desquamation, in which the parasite is detected with the microscope; their seat; and their frequent association with herpes tonsurans, or sycosis —are characters not to be mistaken.

The disease which is most likely to be mistaken for it is *erythema circinatum;* but in it the red circles have not that distinct elevation which characterizes those of herpes circinatus, and no parasite is to be detected. The

history of the case also helps to clear up the diagnosis. The same remarks apply to the diagnosis of *Erythema Iris* from Herpes Iris. I say nothing of the distinction between herpes circinatus and erythema marginatum, for I believe them to be one and the same disease.

The *lepriform variety of psoriasis*, when it is undergoing the process of cure, might be mistaken for herpes circinatus; for in this stage the thick scales have disappeared, and nothing is left but erythematous circles, or segments of circles, which have a great similarity to those of herpes circinatus. But in such cases the absence of the parasite, the existence of patches of eruption on the elbows and knees, and the history of the case, will prevent mistake.

An *erythematous syphilitic eruption* sometimes assumes the circular form, but the circles are not nearly so prominent as in herpes circinatus; and besides, other symptoms of syphilis will usually be present, which will prevent mistake. In doubtful cases, the scales should be examined microscopically, and the history obtained.

The *prognosis* is by no means serious, the eruption having a tendency to terminate spontaneously, the parasite having but a feeble hold upon the skin. It is also readily removed by treatment; but we must always bear in mind, that persons affected with it are liable to attacks of the other varieties of tinea tonsurans, and those attacked should be isolated, for herpes circinatus is undoubtedly contagious.

(a) See Gibert's "Traité pratique des Maladies de la Peau et de la Syphilis," tom. i. pp. 278, 279.

CHAPTER VI.

In the last chapter I endeavoured to give proofs of the identity of herpes circinatus, sycosis, and herpes tonsurans, which were classed under the common denomination of tinea tonsurans, and it is to be hoped that my readers are as thoroughly convinced as I am myself, that the differences in the symptoms of these three affections are merely owing to the different tissues of the skin attacked, and not to differences in their nature and in the causes which give rise to them.

Having described also the general symptoms pertaining more or less to all three varieties of tinea tonsurans, and the special characters of herpes circinatus, there remain a few details with regard to sycosis and herpes tonsurans.

SYCOSIS.

Sycosis contagiosa—Mentagra—Trycophytie sycosique (Hardy).

Sycosis is an affection which was well known to the ancients, although its nature was not then understood; and Gibert has translated a very interesting account, by Pliny, of the raging of this disease during the reign of Tiberius Claudius Cæsar. A Roman knight is said to have imported it from Asia, where it was very common, and to have transmitted it by contagion to his fellow-citizens. It attacked, principally, the wealthy and the noble,

but females were totally exempt from it. It was treated with caustics, and the soft parts were often burnt down to the bone before the disease was finally eradicated, the deformities thus occasioned being described as far more hideous than the affection itself—the remedy was worse than the disease. It is much more frequent on the continent of Europe than in England. This I believe to be partly owing to the frequency with which men kiss one another in these countries, as in the case of the Romans of old, thus communicating the disease to their friends, but principally to the custom prevailing almost universally of going daily to the barbers to be shaved. The razor is allowed by all dermatologists to be an active agent in the production of sycosis; but there are many (those, namely, who do not believe in the parasitic nature of the disease) who suppose that this is owing to the bluntness of the instrument. I cannot, however, agree with this opinion, being firmly persuaded that the cause is to be looked for in the razor's being impregnated with the sporules of the parasite. A blunt instrument I believe to be capable of producing an impetigo, but never a sycosis. Most of the patients whom I have seen affected with the latter, have ascribed it to their having been shaved at the barber's. Now, it is well known that barbers have generally much sharper razors and shave much more dexterously than those who shave themselves at their own homes, which is an additional proof against the irritation of the instrument being the exciting cause of the disease.

The ordinary seat of sycosis is certainly the chin —hence the word Mentagra (*mentum*, the chin) so frequently employed to denote it; but it is very often met with also on the upper lip and hairy parts of the cheeks. As it only attacks hairy parts, it is confined to adult males, when on the above situations, but when other hairy parts are affected, as the axillæ or genital organs, females are not exempt from it. From the statistics of Devergie it seems that, of 1800 skin diseases, 21 were cases of sycosis, that is to say, on an average, every 90th case.

The disease commences exactly in the same way as herpes circinatus—namely, by the appearance of small erythematous spots, gradually increasing circumferentially, and healing in the centre, leaving elevated rosy circles, or segments of circles, covered by furfuraceous desquamation, in which the parasite can be detected microscopically. These circles are not so readily detected by the patient, being covered by hairs; and the itching not being very intolerable, he rarely applies for relief, and hence the disease is not generally seen in this stage. At this time, however, the hairs commence to become affected, and can be pulled out with considerable ease. Their microscopical characters are reserved till after the description of herpes tonsurans. The irritation produced by the parasite gradually increasing, the deeper structures become involved, and small indurations occur, surmounted by pustules resembling those of acne. The deeper cellular tissue gradually partakes in the diseased process;

large tubercles, from the size of a nut up to that of a hen's egg occur, which become frequently covered with crusts; and on removing these, large fleshy-looking indurations are exposed to view, which are highly characteristic of the advanced stage of the disease, resembling, as they do, enormous raspberries as regards their lobulated surface.

On these tubercles also many blackish points are often to be detected, which are found to be neither more nor less than hairs broken off on a level with the cutaneous surface. By this time many of the hairs have fallen out, leaving bald spots which result sometimes in permanent alopecia. But generally the hair-follicles are not quite destroyed. Their secretion, however, is very abnormal, and the hairs which grow from them have lost their shining appearance; their colour is altered, and they have become very brittle, and break off on a level with the skin, or within a couple of lines of it. These hairs can be pulled out with the utmost ease, and have neither capsule nor root. Very often, as before stated, large segments of circles of herpes circinatus extend round the front of the neck, beneath the beard, from ear to ear; and these, when present, are also highly characteristic. I have already alluded to patches of herpes circinatus on the outside and back of the wrist, produced by rubbing the diseased chin with, and the consequent deposit of the parasite upon, these parts.

The disease sometimes, though rarely, terminates spontaneously; it is often aggravated by injudicious appli-

cations, and may last for years, when suitable treatment is not adopted.

The *Diagnosis* is very easy, and the disease cannot be mistaken when its characters are well marked. The erythematous spots and circles among the hairs; the rings of herpes circinatus on the neck, wrist, and other parts; and the raspberry-looking tubercles—give unmistakable evidence of the affection when these symptoms are present: while the alteration of the hairs, the patches of alopecia, and the discovery of the parasite with the microscope, render the picture complete. The parasite is most easily detected in the early stages of the disease, and corresponds in every respect to the tricophyton above described; but, in the advanced stages, when inflammation runs high, and suppuration has occurred, its characters are altered, or it is quite destroyed by the suppurating process. It is this alteration of the parasite which has led Gruby into the error of describing sycosis as independent of the sporules of the tricophyton, but owing to the presence of another parasite, which he denominates the microsporon mentagrophyte. For the same reason, probably, it is that Hebra does not believe sycosis to be a parasitic disease at all, looking upon the parasite, when found, as merely an accessory and by no means essential element of the disease.

Impetigo has often its seat on the chin, and is very frequently mistaken for sycosis. But in impetigo there are no circles of herpes circinatus to be seen—its seat is much more superficial; there is an absence of subcutaneous

swelling and induration to the same extent as in sycosis; the hairs also adhere firmly, and pain is experienced on extracting them, while they exhibit a perfectly healthy appearance under the microscope. No parasite can be detected either in the hairs or exfoliated *debris*, and the disease is not contagious. These characters when carefully attended to, are surely sufficient to clear up the diagnosis.

Acne Sycosiformis, or Acne Mentagra (the tuberculated form of acne attacking the beard), is exceedingly apt to be mistaken for sycosis, and I believe that most of the so-called cases of sycosis described in this country, have been cases of acne, the true parasitic disease being, as far as my observation goes, very rare in Scotland at least, though common in Paris. At first sight, the appearances of these two affections are almost identical. But acne is not contagious; no parasite can be detected in the hairs, although they can often be pulled out with facility (their roots having been destroyed by the inflammatory process); there is an absence of rings of herpes circinatus around the front of the neck, or on other parts of the body; and it frequently occurs in combination with acne of the non-hairy parts of the face.

Syphilitic Affections may sometimes be mistaken for sycosis, because the tubercles of the latter often present a more or less coppery appearance, and because the upper lip and chin are seats of predilection of both affections; but the history of the case, the other characters of the eruption, the presence of other syphilitic affections on other

parts of the body, and the absence of the parasite, are characters of great value in arriving at the nature of the case.

The *Prognosis* is always favourable as regards life, and when properly treated it is always curable. When left to itself it rarely gets well, or, if so, it is usually at the expense of permanent loss of the hair of the affected parts. When the disease has reached an advanced stage, it can always be cured much more rapidly than in the earlier erythematous period, because the parasite has, by that time, been nearly destroyed by suppuration, and because the hairs can be extracted with the utmost ease. The cure, however, in such cases, is not always so satisfactory, for, owing to many hair-follicles having been destroyed, patches of permanent alopecia may be the result. When powerful caustics have been employed, great disfigurement may be the result, as in the case of the ancient Romans. It is satisfactory, however, to think that treatment so barbarous is not likely to be adopted in the present day.

I come now to the last of the three varieties of tinea tonsurans, namely :—

HERPES TONSURANS.

Ringworm of the head—Porrigo scutulata (Willan), Trichosis furfuracea (Wilson), Porrigo furfurans. Teigne herpétique furfuracée (Gibert), Teigne tondante (Mahon), Tricophytie tonsurante (Hardy), Porrigine tonsurante (Alibert), Trichomyces tonsurans (Malmsten), Rhizo-phyto-alopecia (Gruby).

Herpes tonsurans is met with almost exclusively in children, although the cause of this predilection is not

known. It is also almost confined to the scalp, although it may appear on other hairy parts. It generally displays itself, first, in the form of more or less rounded patches on different parts of the head, of a scaly or pityriasis-like inflammation, although sometimes in the form of very small vesicles; and these patches, at first very small, gradually increase and invade larger surfaces. The hairs in this stage are dull, dry, twisted, and easily extracted; but as the disease advances they become very brittle, and break on attempting to extract them; and as this friability increases, they break off of themselves within a line or two of the skin. The epidermis and stumps of the hairs become now covered with a most characteristic greyish-white powder, forming, as it were, sheaths to the hairs; and this powder consists of the vegetable production. When seen in this stage, the disease cannot be mistaken; the rounded form of the patches, the hairs broken off close to the skin, and covered with the greyish-white parasitic dust, are highly characteristic. In this stage also there is slight elevation and puffiness of the skin of the affected parts, and it is marked also by little prominences, from engorgement and elevation of the orifices of the hair-follicles. In arriving at the diagnosis, Bazin places great faith in the colour of the skin of the patches, which is bluish or slate-coloured in dark subjects; greyish, reddish, or yellowish in fair persons. It forms a marked contrast to the skin of the neighbouring parts of the scalp, and is one of the last symptoms to disappear.

In the more advanced stages the inflammation may run

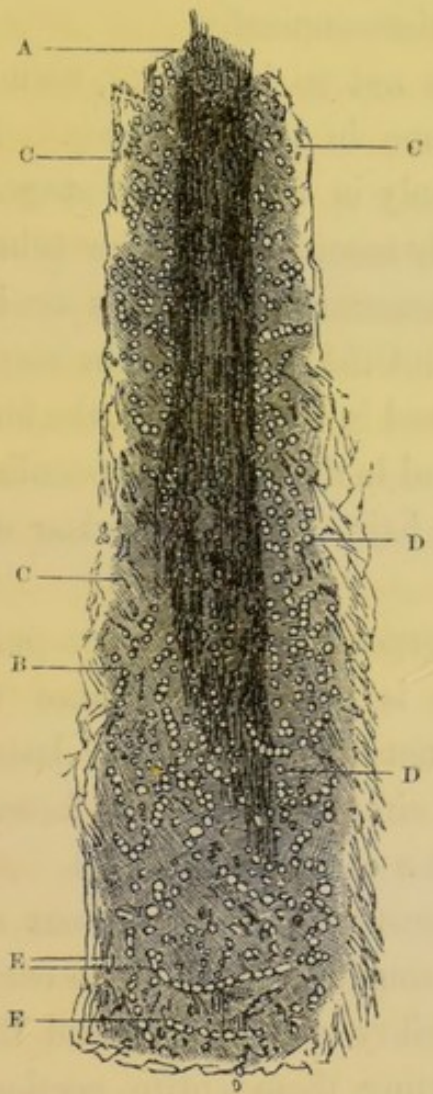
higher, pustules and yellowish crusts may be formed, and the diagnosis is thus rendered more obscure. This inflammation may last an indefinite length of time, but, when left without treatment it may end spontaneously, and a perfect recovery take place, or obliteration of the hair-follicles may occur, permanent alopecia of the affected parts, and atrophy of that portion of the scalp. During the whole course of the disease there is more or less itching complained of, and sometimes a tingling sensation.

On examining the hairs in this affection and in sycosis, they are found to be very much thickened. In the early stages the bulbs are flattened and more or less disorganized. As the disease advances the bulbs are destroyed altogether, and the ends of the hair have a very ragged appearance, resembling, on a small scale, the ends of a piece of wood which has been broken across. The longitudinal fibres of the hair are very much separated by masses of sporules embedded between them, and here and there the diameter of the hair is increased, the nodosities being due to the accumulation of the fungus at these points. The medullary portion of the hair is quite disorganized and has disappeared altogether, owing, probably, to the pressure of the abnormal production—see Figs. 9 and 10. In the advanced stages of sycosis, when inflammatory and suppurative symptoms have set in, the parasite is difficult to find, being more or less altered or destroyed by the pus which is formed.

The *diagnosis* of herpes tonsurans is generally easy. In the second stage of the affection, when the hairs are

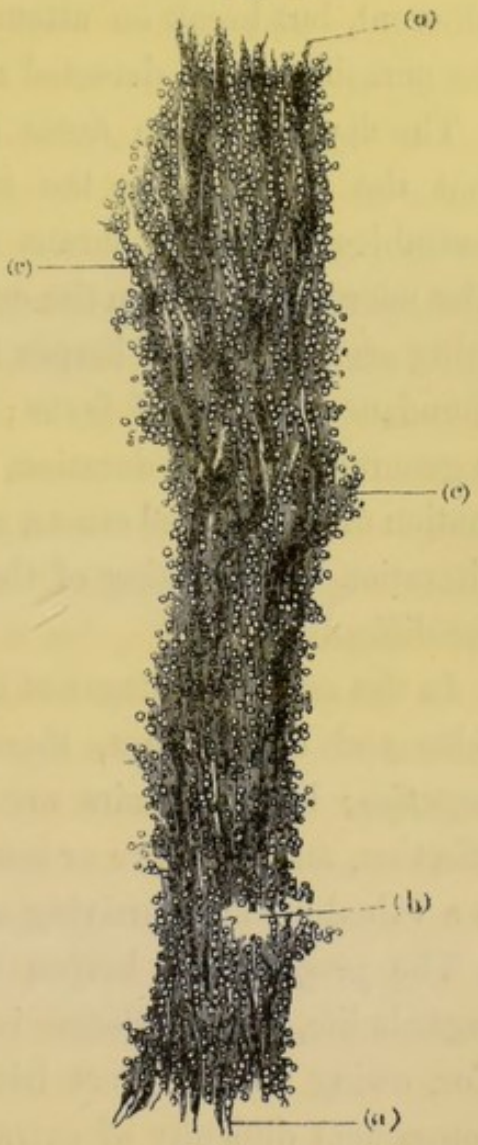
broken off close to the skin, and when they are covered by the greyish-white, parasitic dust, a mistake is next to

Fig. 9.



Hair from a case of sycosis; A, rupture of superior extremity of hair; B, rupture of inferior extremity of hair; C C C, epidermic tunic of the hair; D D, isolated spores; E E, chains of spores.—(Bazin.)

Fig. 10.



Hair from a case of herpes tonsurans, loaded with spores; (a a) broken ends of hair; (b) rupture of longitudinal fibres; (c c) ragged edges of hair.

impossible. But in the earlier periods it may be mistaken for pityriasis or favus.

Pityriasis, however, generally affects the whole scalp, while herpes tonsurans is in patches having generally the circular form; in the latter also the hairs are not so adherent, but break on attempting to extract them, and the parasite can be detected microscopically.

The diagnosis from *favus* is not so important, seeing that the treatment is the same in both diseases. It resembles herpes tonsurans only in the earliest stages. The microscope is then the only resource, very few tubes being seen in cases of herpes tonsurans, while they are in abundance in cases of favus; but the erythematous stage is generally of short duration, and in the one case, the formation of cup-shaped crusts, and in the other, the peculiar alteration and breaking of the hair, comes in to clear up the difficulty.

In the advanced stages of herpes tonsurans, when pustules and crusts form, there is some resemblance to *impetigo;* but the hairs are not diseased in the latter affection, and the more or less circular form of the former is a valuable aid in arriving at a correct conclusion.

The *prognosis* of herpes tonsurans is not serious as regards life, but the disease is sometimes difficult to cure. For, owing to the great friability of the hairs, and the consequent difficulty of extracting them entire, portions of them are left embedded in the follicles which are, so to speak, saturated with the cryptogam. When the disease is allowed to run its course without treatment, permanent alopecia of the parts may occur, although there are a good many cases of spontaneous cure which

must be considered as owing to some peculiarity in the constitution of the patient, in virtue of which the skin ceases to afford appropriate nourishment to the vegetable formation.

CHAPTER VII.

To complete the account of tinea tonsurans, the causes and treatment applicable to its three varieties remain to be discussed.

Causes.—From what has already been stated, it will readily be understood that I look upon the spores of the tricophyton as the essential agents in the production of all three varieties of the disease. There are many dermatologists who look upon the parasite merely in the light of a secondary formation, while others deny its existence altogether. Wilson, for instance, ascribes its origin to poorness of the blood, an opinion which is altogether untenable. In order to refute these opinions, it is only necessary to recall the fact, above mentioned, that Deffis produced the disease by the simple introduction of the parasite beneath the epidermis. The spores may come into contact with the skin by transmission through the air, or they may be inoculated as above; but the most frequent modes of transmission are by the use of brushes, combs, razors, or articles of dress of persons affected with it, or by direct contact with the diseased surfaces, as in the case of persons sleeping together.

The predisposing causes must also be taken into account. Bazin finds a frequent coincidence of tinea tonsurans with syphilitic affections in his patients, and he

thinks that the parasite probably germinates more readily on such a soil. There can be doubt about the fact that the spores do not germinate equally readily on the skins of all persons, although the peculiar states of the system which are favourable to its growth have not yet been thoroughly investigated. We see, in the case of the eruptive fevers, that all people are not equally susceptible of their contagious influence, although we cannot generally tell, *a priori*, what persons are more likely to be attacked than others. Some dermatologists are of opinion that, as in the case of fevers, the spores of the fungus germinates more readily in those who are debilitated from disease or from want of good food, pure air, exercise, &c. But although this might appear probable, theoretically, it is not at all confirmed clinically, for the majority of those affected are in robust health. Want of cleanliness is, however, a powerful predisposing cause, in so far as dirty persons allow the parasite to remain a long time in contact with the epidermis, whereas it might have been removed by ablutions regularly performed.

The age has also a powerful influence. Thus herpes tonsurans is a disease almost confined to children, although the reason for this has not yet been ascertained. Sycosis, on the other hand, is for manifest reasons rarely met with except in adult males, while herpes circinatus occurs at all ages and in all ranks of society.

The *treatment* of Tinea tonsurans need not occupy much space, as many of the remarks made when treating of favus apply equally to the cure of this disease. It

will be necessary, however, to speak separately of the three varieties of Tinea tonsurans.

In cases of *Herpes circinatus* (ringworm of the body), the parasite has but a feeble hold upon the skin, and the downy hairs are but to a small extent impregnated with the parasite. If the person affected be very hairy, it may be necessary to attempt to remove the hairs; but the application daily of one of the stimulating lotions or ointments formerly mentioned (see Chap. IV., p. 42), is generally sufficient to effect a cure.

If these fail, however, and more especially if the circles are few in number, the application of a blistering fluid is very beneficial; the preparation which I am in the habit of employing is acetum cantharidis prepared with glacial acetic acid. Care must be taken to shake the bottle so as to diffuse the deposit through the mixture; for the supernatant fluid will not blister. This should be painted on the eruption with a small brush till the patient complains of considerable pain. One application is usually sufficient if vesication has been effected, but it should be repeated in a week or ten days if necessary. Other vesicating fluids may be used, which are equally serviceable. Thus, Startin usually employs Bullen's vesicating fluid, I believe, and I have tried the application of a piece of lint soaked in a solution of the bichloride of mercury (in the proportion of ten grains to the drachm of alcohol), and retained *in situ* for a couple of minutes. I do not use this much now, however, as there is some risk of salivation; although

the bichloride, when used as a vesicant, seems to have generally a purely local action.

When there are a great many patches of herpes circinatus scattered over the body, they may be treated by means of sulphur or mercurial vapour baths, which act upon the whole skin, and thus attack all the patches at once; or the eruption may be scrubbed twice daily with black soap, by which means the parasite is to a great extent mechanically removed, the inflammatory symptoms are subdued, and the affection frequently cured.

Sycosis (ringworm of the beard), must be treated both by depilation and the application of one of the stimulants before recommended (see Chapter IV., p. 42). When the diseased process has run very high and there is a great deal of suppuration and induration, it is, according to some, better to commence the treatment by soothing applications, such as cataplasms of potato-starch combined with purgatives. I am not quite certain, however, whether it is not better to proceed to depilation at once, for the best way of removing the irritation is to remove the cause; and besides, the hairs are much more easily extracted while the inflammation and suppuration are considerable. In the early stages of the disease depilation causes considerable pain, and although well performed, some of the hairs usually break, leaving the diseased bulbs in their follicles, so that a second or third depilation, although only a partial one, is generally required. When treated in the advanced stages, after the formation of pustules and indurations, although the

inflammatory and suppurative processes have destroyed the parasite almost completely, the depilation is just as necessary. For, although the fungus is all but destroyed, the diseased ends of the hairs, remaining in their diseased and abnormally secreting follicles, act as foreign bodies and keep up the inflammation. At this advanced stage of sycosis, the results of depilation are often astonishing. The hairs are removed with the utmost facility, and one depilation is sometimes sufficient; but it must be combined with the application of a parasiticide lotion or ointment. It is almost incredible to those who have not witnessed cures from this treatment, the rapidity with which a chin, twice its ordinary size, and covered with large tubercles, indurations, and crusts, sometimes becomes, in the space of two or three weeks, perfectly healthy in appearance, with this exception, that here and there patches of alopecia are left, which are permanent; but this is not the fault of the treatment, but of the patient in having neglected to apply for advice in the earlier stages of the disease.

In the treatment of sycosis, many are in the habit of applying caustics and vesicants. Those which are most to be recommended are the concentrated nitric acid and the glacial acetum cantheridis. Whichever of these is selected should be painted over the tubercles alone (and not over the whole chin) after the removal of the crusts by means of oil. These applications require frequently to be repeated, and they cause much pain, while they are

not nearly so generally nor so rapidly effectual as the treatment by depilation.

Arsenic has always been a very favourite medicine in the treatment of sycosis, and its use combined with cod-liver oil, is highly extolled by Hunt, who seems to look upon it almost in the light of a specific. I can easily conceive that this remedy, so powerful in many other cutaneous affections, may act beneficially in changing the state of system favourable to parasitic development, although I have never had occasion to try it; but I can hardly think that it can cure the disease, unless, by changing the composition or qualities of the blood, it causes the death of the parasite. Besides, in examining the illustrative cases cited by Hunt, I am left in doubt as to the nature of the affection. Thus, some are described as labouring under a tubercular eruption of the bearded portions of the face; others as having been troubled with sycosis one year; and in another case the only thing we are told with regard to it is that *the* disease had existed "on and off" for fourteen years. And on looking at the results of the treatment I find that one patient was "nearly well when he last applied;" another is "believed to have recovered;" and a third "absented himself, *probably* cured"!! Now, however much Mr. Hunt may have convinced himself of the efficacy of arsenic and cod-liver oil in the removal of sycosis, it is necessary to have more convincing proof than he has given us of its beneficial operation. And, even supposing that Mr. Hunt's treatment is capable of

removing sycosis, it is not nearly so successful, even by his own showing, as the treatment by depilation and parasiticides.

In the treatment of herpes tonsurans (ringworm of the head) some are in the habit of trusting solely to the daily application of stimulating and parasiticide lotions or ointments, such as I have alluded to when discussing the treatment of favus (Chapter IV., p. 42). For this purpose also, Dr. Jenner strongly recommends an ointment composed of 20 grains of the ammonio-chloride of mercury, and 4 drachms of sulphur ointment. Scrubbing the affected parts night and morning with black soap, is likewise beneficial, as it removes mechanically a large quantity of spores, and acts as a stimulant to the skin. The soap should not be washed off till the next application is about to be made. Devergie is in favour of the application of oil of cade, or of a solution of nitrate of silver in the proportion of a drachm to nine drachms of distilled water.

I prefer however, in most cases, to combine the application of one of these preparations with the extraction of the hairs. The hair of the whole head should always, if possible, be cut short, as otherwise, some of the patches, which are often very minute, are apt to be overlooked, and the disease thus allowed to spread. The extraction of the hairs at the edges of the patches should first be effected, and from the edges the epilation should be extended inwards towards the centre. It will be found, however, that, while the hairs at the edges come away entire, those in the centres of the patches are almost

certain to break, the diseased roots being left in the follicles. But we must just content ourselves with pulling out as many as we can, and the epilation must be frequently repeated; for, after a while the hairs gradually become more healthy, and at last come away entire. (For the manner of pulling out the hair, the way of combining epilation with the application of parasiticides, &c. —see Chapter IV., p. 42).

If the friends of the patient object to the trouble of depilation, the patches may be blistered with glacial acetum cantharidis; and this process, which requires usually to be repeated once a week for several weeks, is very effectual in curing the disease. I need not dilate further upon this method of treatment, however, as it has been already discussed under the treatment of ringworm of the body (p. 72).

CHAPTER VIII.

ALOPECIA AREATA.

(*Disease due to the presence of the Microsporon Audouini.*)

Tinea decalvans—Porrigo decalvans (Bateman)—Alopecia circumscripta—Pelade—Phyto-alopecia (Gruby)—Ophiasis—Teigne décalvante (Devergie)—Teigne achromateuse—Area (Celsus)—Vitiligo capitis (!) (Cazenave).

ALOPECIA areata is one of the most interesting, as well as the least understood, of the parasitic affections of the skin. A disease confined to those parts of the cutaneous envelope provided with hairs, it attacks the scalp principally; but the beard, the genital organs,, and other hairy parts are also exposed to its ravages. Although not in any way dangerous to life, it is yet rather an alarming disease from the deformities which it may occasion; sometimes continuing to flourish till every particle of hair on the body is destroyed. The phenomena of this curious disease are best studied on the scalp. It consists essentially of the formation of rounded or oval patches of baldness, sometimes solitary, but more generally multiple. These patches commence, according to Willan, by the production of pustules, which are *very ephemeral.* They have, however, never been seen by other observers; and, indeed, it seems doubtful if Willan himself ever saw them.

On examining the hairs of the affected parts in the early stages, they are found to be dull and lustreless, and more easily extracted than healthy ones. The skin from

which they proceed is found to be slightly reddened, and it is also the seat of a peculiar swelling, having the appearance as if the subcutaneous tissue was œdematous; but it does not pit on pressure, as in true œdema. At this early stage, there is a whitish matter on the diseased skin and hairs, which is nothing else than the parasite which occasions the disease. It is not, however, in nearly such abundance as in Herpes tonsurans, a disease which it resembles in many respects. At the commencement, itching is complained of, which is generally slight, so much so, indeed, as often to excite little attention, so that the disease is not observed, and continues its ravages till baldness has been produced. This first stage is of short duration, and is followed by the falling out of all the hairs of the affected parts, which takes place very rapidly, leaving a rounded bald patch. By this time the faint red tinge of the scalp has completely disappeared, being replaced, according to Bazin, by a condition exactly the opposite; that is to say, it has become perfectly white, having apparently lost every particle of its pigment. This white colour certainly contrasts strongly with that of the parts of the scalp provided with hairs; but it seems probable that this is not so much owing to any defect of pigmentary secretion as to the loss of the roots of the hairs. After the hairs have fallen out, they are replaced by a number of fine short downy ones, resembling the down on the cheeks of infants. By-and-by even this disappears, the slight swelling of the subcutaneous tissue subsides, and we now see merely the rounded patches of

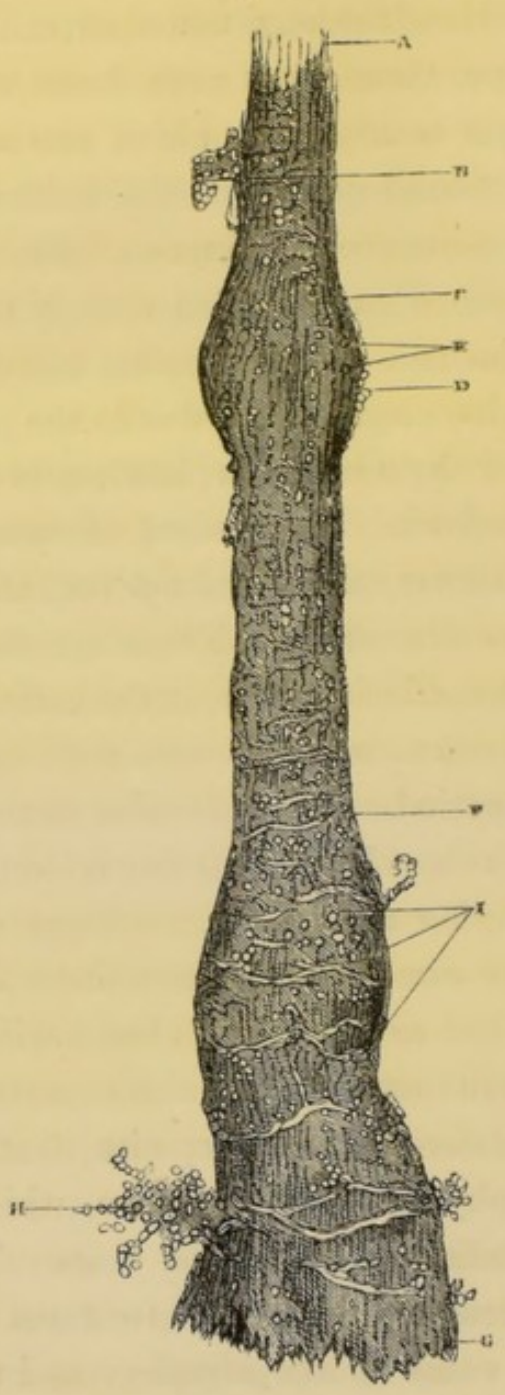
baldness, the skin of these parts being smooth and white. The disease is often very limited, there being only one small patch on the scalp; but more frequently there are several, and these, at first small, have a great tendency to increase and involve the neighbouring healthy parts by circumferential extension, so that at last a number coalesce, forming one large patch, having a serpentine form; hence the name ophiasis sometimes applied to this affection. In this way the whole of the scalp may be attacked, and permanent baldness produced. Instances have been met with, as before observed, of the complete removal of the hair from the scalp, eyebrows, beard, and genital organs, so that not a single hair remained. A case of general alopecia is recorded by Hardy, who states that when the disease is so extensive, the system is apt to become involved, and an arrest of development in children produced. (a) According to Bazin, the nail may also be attacked, and a very interesting case of the kind is thus reported by him :—"A physician caused to be brought to me, at the St. Louis Hospital, his nurse's child, about ten or twelve years of age, affected with pelade ophiasique (the serpentine-shaped variety of alopecia areata) of three months' standing. This child's head was studded all over with bald patches. Upon two fingers of the right hand a notable alteration of the nails was detected, which had a great resemblance to that produced by the tricophyton. At the free extremity of each, the longitudinal striæ were separated from one another, giving them a very ragged appearance. On the body of the nail, beneath the super-

ficial lamellæ, small yellow spots were remarked, which followed the course of the longitudinal striæ. With the aid of the microscope, these spots were found to be formed by the microsporon Audouini, which was also detected in remarkable abundance upon the hairs which were submitted to microscopic examination." (b)

Causes.—From what has been already stated, it will be seen that the true alopecia areata is regarded as a disease of parasitic origin, being due to the presence of a fungus, detected by Gruby in 1843, and named the *microsporon Audouini.* It consists of spores and filaments, the former very small and not very numerous, the latter in greater abundance. These are found on the skin, mixed with epithelial scales, in the early stage of the disease, and they are also to be met with on the downy hairs at a later period. In the interior of the hairs they are also met with—see Fig. 11—being collected into little bundles, and causing remarkable swellings of the hairs. Their bulbs also are distinctly atrophied—a peculiarity which is so marked as to be seen almost without the aid of a lens. Many dermatologists in this country, as Startin, Hutchinson, and Jenner, are of opinion, that the disease consists in atrophy of the bulbs alone, which they say accounts for the falling out of the hairs. This is, to a certain extent, true no doubt, but we must go further, and find out the cause of the atrophy; and this is satisfactorily explained by the detection of the parasite, the presence of which is denied by them.

There are some who doubt the contagious nature of

Fig. 11.



A F, lower part of the hair; F G, root of the hair without capsule; C, spheroidal swelling of the hair, due to the accumulation of spores, E, between the longitudinal fibres of the hair; D, rupture of the longitudinal fibres; I, spores and tubes of the parasite; H, bunch of spores; G, rupture of the root.—(Bazin.)

alopecia areata; and in an excellent report of cases of this disease by Hutchinson, I find that one of the propositions deduced from the cases recorded is, "that alopecia areata is totally incapable of spreading by contagion." (c)

That it is as contagious as herpes tonsurans (ringworm of the head) no one can assert, but it is pretty certain that it sometimes is so transmitted. I have at present under my care, for instance, two children, brother and sister, affected with this disease, and the boy appears to have communicated it to his sister from using the same brushes, etc. Hardy states that he had lately a patient who, on the advice of his physician, retained in his service a domestic affected with alopecia areata, and who, since then, had been affected with the disease on his beard. (d) Gibert relates the following case:—"A little boy, nine years old, affected with porrigo decalvans, was brought to me by his mother. According to her account, the disease only commenced fifteen days before, at a boarding-school, where several of the pupils were successively attacked after exposure to contagion from another boarder who was affected with it, and who had introduced it into the establishment. On the child brought for examination there existed above and a little behind the ear, towards the back part of the left parietal region, a spot the size of a five-shilling piece at the most, deprived of hair, and covered by little greyish scales. These little scales, accompanied by a little itching, were only developed consecutively to the alopecia. The first

thing which struck the mother was the baldness of that portion of the scalp as if it had been shaved." (e) Gibert also quotes the following case which was observed by M. Gillette of Paris :—" Four months ago a pupil twelve or thirteen years of age arrived from the country at one of the royal colleges of the capital. The day after his arrival, a bald spot about an inch in diameter was detected on the side of the head in front of the ear. The physician of the establishment examined it, saw nothing suspicious in it, and thought that he could live with the other pupils with impunity. After fifteen days the pupil who sat next him was found to have likewise a bald patch of nearly the same size without any premonitory symptom. Since then, six other pupils in the same room have become affected, and always suddenly, but in no case was the patch of baldness more extensive than that mentioned." (f)

These cases are surely sufficient to prove that alopecia areata is a contagious disease, and that children so affected should be separated from their companions. Little is known with regard to the predisposing causes, except that the disease is much more frequent in children than in adults. Thus, of 42 cases cited by Hutchinson, 28 were in persons under 15, and 14 above 15 years of age. (g) In adult males it is not unfrequent on the beard.

Diagnosis.—When the disease is fully formed, the diagnosis should be very easy. The patches of circular or oval form, either completely bald or covered with

small downy hairs, are not to be mistaken, and the microscopic characters of the hairs, the atrophy of their bulbs, and the detection of the parasite, confirm the diagnosis.

In the earlier stages, when there is only slight swelling and redness of the scalp and alteration in the characters of the hairs without any baldness, there may be some doubt, but generally other patches may be seen on other parts where the disease is further advanced, which will clear up the difficulty.

To avoid error, however, it merely requires to be mentioned that cases have been met with of the occurrence of patches of herpes tonsurans and alopecia areata on the head at one time. These cases are of course rare, but to avoid any possibility of error in such a case, let the disease develop itself for a few days without interfering in any way, and its true nature will soon be apparent. A mistake in the diagnosis of alopecia areata from herpes tonsurans is, however, of no great moment, the treatment being almost exactly the same.

The disease which has been most frequently mistaken for alopecia areata is *vitiligo;* but how such a mistake can be made seems quite incomprehensible. Vitiligo, as I understand it, is generally a congenital affection which is not confined to the hairy parts of the body, consisting of an abnormal distribution of the pigment of the skin, so that there are irregular patches which are quite white and altogether wanting in pigment, but are surrounded by skin provided with an excess of colouring matter.

When these patches of skin are on hairy parts—the hairs proceeding from the portions deprived of pigment, are similarly affected and are quite grey. What two diseases can be more distinct? I believe that this mistake has only become possible since the absurd name (vitiligo capitis) has been given to alopecia areata by Cazenave, and this is one of the consequences of a bad nomenclature.

Favus may be mistaken for it, if the former has been subjected to treatment, and the crusts removed. But an attentive examination of the diseased surface will prevent error. For, on the portions of scalp which have been the seat of favus crusts, the integument is reddened and depressed, and the hairs have not necessarily fallen out, whereas in alopecia areata, the scalp is generally quite white and bald, or only covered with a little down. If there be any doubt, leave the disease to itself for a few days, when, if it is a case of favus, the little yellow cup-shaped crusts will begin to make their appearance.

The alopecia arising from various affections of the scalp, such as eczema, psoriasis, lupus erythematodes, affections of a syphilitic nature, and alopecia resulting from old age, requires only to be mentioned, and kept in mind in order to prevent mistaking it for alopecia areata.

The *prognosis* is not at all serious as regards life, but the disease may cause great deformity. If it is seen early, it can easily be prevented from extending further, and by careful and patient treatment the hair may

generally be made to grow ultimately as well as before. If all the hair-follicles of the body have been destroyed, the disease, of course, ceases, but it often stops short spontaneously, and the hairs grow as beautifully as ever.

Treatment.—This varies so little from that of ringworm that a very few words will suffice. There are two methods of treatment open to us, that by depilation and the application of stimulants, and by blistering the diseased patches. Of these I generally prefer the latter, as it is much the simplest and the most rapid in its action. One of the blistering fluids recommended for the cure of ringworm may be used, or the collodium vesicans (h), a mixture of equal parts of collodium and ether cantharidalis, or even a common fly-blister, although it is not so elegant nor so easily applied on account of the hair at the edges of the patches. These preparations must be used exactly in the way previously described, so that I must refer my readers for further information upon the subject to the treatment of ringworm (see Chapter VII., p. 72).

If it is thought desirable to attempt to cure the disease by means of depilation and parasiticides, the following is the method of proceeding:—

Let us suppose that we have a circular patch of alopecia areata on the scalp; the first thing to be done is to prevent it from extending. This is to be effected by causing all the hairs within a couple of lines of the circumference of the patch to be carefully extracted. For those at the edge

are very frequently, to a certain extent, impregnated with the parasite, though not so much as to render the depilation difficult; or if not actually diseased, they are very apt to become so, as the affection spreads by additions to the circumference of the patches, and they are therefore much better away. The head, also should be washed daily with black soap, as cleanliness is of great consequence in affections of the head, and the hair should not be kept too long. We must now apply ourselves to the diseased surface. All the downy hairs—if there are any, which is not invariably the case—are to be removed; and this must be effected very carefully, according to the rules already laid down, for they are exceedingly friable and very apt to break off, leaving the diseased roots in their follicles. This depilation of the downy hairs must be persevered in and continued till the healthy hairs begin to make their appearance. Along with the depilation of the downy hairs, and of the hairs surrounding the diseased patch, a parasiticide lotion or ointment must be applied. One of those already alluded to—Chapter IV., p. 42—should be used daily, and probably the bichloride lotion is the best. The whole head may also be occasionally washed with one of these solutions, so as to destroy any of the spores which may be entangled in the hairs, but have not had time to take root.

It is necessary, at the same time, as the disease is attacked locally, to attend to the general health, to correct any disorder of the system, if such exist, and to

endeavour to change that state of system favourable to the growth of the parasite.

(a) "Leçons sur les Maladies de la Peau." Par le Docteur Hardy. Deuxième partie, P. 177.

(b) "Leçons Théoriques et Cliniques sur les Affections Cutanées Parasitaires." Par le Docteur Bazin, 1858, p. 204.

(c) *Medical Times and Gazette*, February 27, 1858, p. 217.

(d) "Leçons sur les Maladies de la Peau." Par le Docteur Hardy. Deuxième partie, 1859, p. 179.

(e) "Traité Pratique des Maladies de la Peau et de la Syphilis." Par C. M. Gibert. Troisième édition. Tome premier, p. 335.

(f) Quoted by Gibert from *Gazette Médicale de Paris*, vol. vii., 1839, No. 36, p. 574.

(g) *Medical Times and Gazette.* February 13, 1858, p. 165.

(h) "Medicines: their Uses and Mode of Administration." By J. Moore Neligan, M.D. Fourth Edition, p. 252.

CHAPTER IX.

PITYRIASIS VERSICOLOR.

(Disease due to the presence of the Microsporon Furfur.)

Chloasma—Maculæ hepaticæ—Leberflecke—Éphélide hépatique (Alibert)—Taches hépatiques—Crasses parasitaires.

Pityriasis versicolor is by no means the least interesting of the parasitic affections of the skin. It is very curious that vegetable structures which differ from one another so very slightly in appearance, so far, that is to say, as the microscope reveals to us their structure, are capable of producing, on the skin, diseased appearances so very different. It shows us that vegetable, as well as animal structures, no matter how low in the scale, are much more at variance with one another in their habits (if I may be excused the expression), and in the material which is necessary for their nourishment and germination, than their apparent external configuration would lead us to expect. Pityriasis versicolor is one of those diseases whose name is very apt to mislead one with regard to its nature, for it has nothing in common with the ordinary pityriasis—a disease which has quite a different aspect, and is altogether unconnected with a vegetable formation.

The affection is very easily recognized. It may occur on any part of the skin, but it is usually limited to the

trunk of the body. It is very rare, indeed, upon the face, and according to my experience, is only met with on the extremities, by extension of the disease from the trunk. It seems, therefore, to have a great predilection for those parts of the body which are habitually covered by clothing, and in confirmation of this statement is a case, seen by Gudden, of a young man who went with his chest uncovered, and who was attacked "all round" by the fungus, whilst the "open space" remained unaffected. (a) It commences by little spots about the size of a pin's head, which gradually extend circumferentially, retaining the circular form as they increase, but not healing in the centre as in the case of herpes circinatus. These spots gradually unite, and the circular form is then lost, there being thus produced large irregular patches which may extend till almost the entire skin of the trunk becomes affected.

On examining one of these patches, it will be found that the skin is scarcely at all elevated above that of the surrounding parts, but that it has a peculiar brownish colour, which when once seen can never be forgotten. The depth of tint varies much. It is sometimes so light as to differ only slightly from that of the healthy skin; sometimes so dark that it is almost black—hence the name Pityriasis nigra which has been applied to this variety, and which is only met with in those having very dark complexions. The colour usually resembles that of diluted bile, hence the names taches hépatiques and éphélide hépatique which have been applied to it, but the

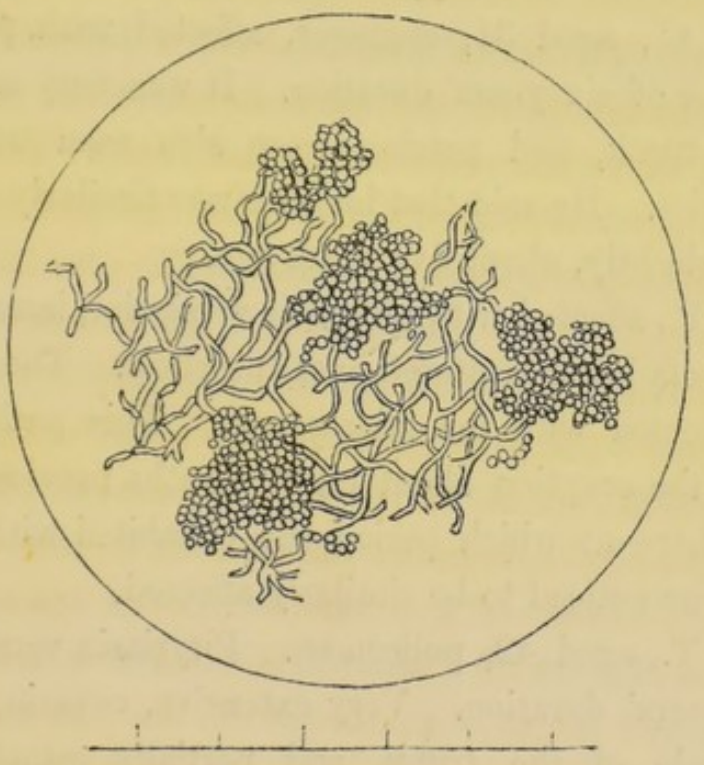
disease has no connection whatever with hepatic disorder, as was supposed at one time.

On passing the hand gently over the diseased surface, it is sometimes, but not always found to be less smooth than the healthy skin, frequently it is seen to be the seat of a very fine desquamation, and whether this be the case or not, it may be produced readily on scratching the parts, showing that the epidermis is not in a normal condition. The scales removed have a yellowish colour when contrasted with the white scales of the true scaly diseases (pityriasis vulgaris, psoriasis, etc.). In general the itching is only slight, and there are no fixed times when this is more annoying than at others, as in the case of the animal parasites, in which the pruritus is most intolerable at night.

Causes.—There is much difference of opinion with regard to the causes of pityriasis versicolor. To me, it appears to be essentially parasitic in nature, and due to the presence of a vegetable growth discovered by Eichstädt in 1846, and denominated the *microsporon furfur*. On putting a little of the desquamated matter under the field of the microscope, and adding a drop of liquor potassæ to render the epithelium more transparent, numerous epithelial scales are detected mingled with the spores and tubes of the parasite. The spores are oval or rounded, of considerable size, and usually collected into large clusters like bunches of grapes. They are so characteristic, that I think I could undertake to form a correct diagnosis of the disease from the microscopical

appearances alone. In addition to them, there are tubes, some of them jointed, others not. These, though often very short, are branching, and thus appear like small broken branches of trees—see Fig. 12. The spores and tubes are found also on the hairs and in them, though not to the same extent as in herpes tonsurans.

Fig. 12.



1000th parts of an inch.

Shows the clusters of spores and the short branching tubes of the microsporon furfur.

There is some dispute as to whether pityriasis versicolor is a contagious affection or not, and those who think that it is non-contagious, use this as an argument against the parasitic nature of the disease. Such being the case, I must be excused for referring to this point at some length,

for pityriasis versicolor is, *without doubt*, contagious. In illustration of this, I shall state shortly the histories of some cases which go to prove it, four of which have occurred in my own practice within five months, from which it may be inferred that the proofs of its being contagious, were they collected, would be fully as numerous as the proofs of the contagiousness of typhus fever, about which I suppose there is no doubt.

1. G. C., aged 31, engineer, affected with pityriasis versicolor of six years' duration. It was very extensive on the trunk, and patches were also seen upon the extremities. He said that his wife was similarly affected, though slightly, about five years ago.

2. J. P., affected with pityriasis versicolor, innumerable small spots being scattered over the chest. The parasite was detected with the microscope. This patient first noticed the eruption about eight months previous to my seeing her—at which period she cohabited with a man whom she noticed to be similarly affected.

3. J. T., aged 42, policeman. Pityriasis versicolor of three years' duration. Very extensive, covering almost the whole of the trunk, and partially attacking the arms and legs. Parasite detected with the microscope. Patient stated that he got it by sleeping with a young man who was similarly affected; but he has not communicated it to his wife.

4. A couple of months ago, three girls came to me, all of whom were affected with well-marked and extensive patches of pityriasis versicolor. I examined the scales

which were scraped off one of them with the microscope —the others I did not think it necessary to investigate— and detected the parasite, with the characters above given, quite distinctly. Two of these girls were sisters who slept together. The third was merely in the same warehouse with them, so that it is doubtful if she contracted the disease from the same source, and indeed, she told me that she got it by sleeping with her own sister, who is likewise affected. The brother of the two first mentioned girls came to me the other day, labouring under the same disease. He stated that his brother with whom he slept was quite healthy, but that his mother had the disease, his father not. Thus out of a family of six, only the father and one of the sons escaped.

A very conclusive case is the following related by Mr. Startin (b):—"John D. Tomlins, aged 30, a very stout and healthy footman, had been troubled with the eruption for four years; it affected the entire chest and abdomen. Two years ago he married, and in a few weeks' time, the spots appeared on his wife's breast. He went to America with his master, and his wife returned to her own family. Out of four sisters, with all of whom she occasionally slept during her visit, an eruption of precisely the same nature appeared in three. They were all grown up and in good health. In the whole five of these patients, the eruption was attended by much itching. The man's statement as regarded his wife was confirmed by personal inspection, but the sisters were not seen. There did not appear, however, any reason for doubting the correctness

of the account given." Now I quite admit that no one of these cases taken separately is sufficient evidence of the disease being contagious, more especially as in some instances, the patient's statements alone were trusted to, and in others they were related to one another, and some might say that the disease was not contagious, but hereditary like scrofula. But take them in the aggregate, and I think they form proof positive of the contagious nature of the disease. It is, however, equally certain that it is not so contagious as some of the other parasitic affections, else we would not meet with so many instances of husbands affected with the disease, who have not communicated it to their wives, and *vice versa*. This leads me to state my belief that it is necessary to the development of the parasite that the constitution of the person attacked be favourable to its growth. The nature of this peculiar state of system is not quite thoroughly understood. And I believe that the reason why this disease is more feebly contagious than other parasitic affections is, that fewer persons supply a soil favourable to the germination of the parasite.

Pityriasis versicolar is, according to my experience, a very common affection, and is met with among the higher as well as among the lower classes. But I believe, notwithstanding, that filthiness plays, in most cases, a very important *rôle* among the predisposing causes of the affection. People are very apt "to wear the same flannel next their skin for a week, a fortnight, three weeks, and, among the poor, even a month. And it is by no means

an uncommon thing for them to wear the same flannel night and day, not once removing it from the moment it is put on till the time it is considered to be desirable to have it washed. The consequence of such habit is an accumulation on the surface of the skin of its secretion, and of undetached epithelium, and the consequent formation of a nidus favourable to the growth of the microsporon furfurans." (c) And I am quite of Dr. Jenner's opinion that the reason why pityriasis versicolor is so often met with in scrofulous persons, is, not that scrofula predisposes to the disease, but that it predisposes to dirtiness, persons so affected frequently wearing the same flannel day and night, and neglecting to wash the body for fear of bringing on, or increasing already existing, disease of the lungs.

Children are very rarely attacked, and males and females appear to be susceptible of its influence in an equal proportion. Some dermatologists affirm that irritation of the uterine organs and pregnancy are predisposing causes, but I suspect that, in making this assertion, they have mistaken ephelis for pityriasis versicolor, the former being a very different affection, and altogether independent of parasitic growth. Alibert was evidently of opinion that pityriasis versicolor was often dependent on disease of the liver. (d) This mistake evidently arose in part from his having noticed a coincidence of several cases of pityriasis versicolor and hepatic derangement, and partly from an idea that, as the colour of the eruption has a great resemblance in many instances to that of bile,

there must be some connection between the cutaneous affection and diseases of that organ.

Diagnosis.—After having seen one case of pityriasis versicolor, and having had its characters accurately pointed out, its diagnosis should be quite easy. The seat of the eruption, on the trunk—its irregular form—its peculiar colour—its very slight elevation above the level of the surrounding parts—the slight itching—the scanty but always producible desquamation by scratching, the scales being fine and yellowish in colour, and the detection of the parasite with the microscope, are characters which ought to leave no doubt as to the nature of the affection. And yet there are diseases which, not unfrequently, are mistaken for it.

When, for instance, the patches of pityriasis versicolor have so united to one another by circumferential extension that they inclose portions of sound skin, there is some resemblance to *vitiligo*, the characters of which affection were stated shortly when treating of the diagnosis of alopecia areata (see Chapter VIII., p. 85). In such a case as that above described, it is only necessary to examine attentively the affected part, when we find that, in pityriasis versicolor the yellow-coloured portions of skin are slightly elevated, itchy, and scaly, and amongst the scales the parasite is detected, while in vitiligo the coloured patches are merely owing to an excess of pigment, with no elevation of surface, no itching or desquamation, and no parasite is to be found. And besides, on examining the inclosed portions of

pale-coloured integument, we find that in pityriasis versicolor it has the same colour as the skin of other parts of the body, while in vitiligo it is much whiter than the normal cutaneous envelope. In addition to this, vitiligo is generally congenital, and is only a deformity, an abnormal distribution of pigment, and incurable, while pityriasis versicolor is rare in children, is a veritable disease, and can generally be with facility removed—at least temporarily.

The affection denominated *Ephelis* has also been mistaken for pityriasis versicolor. The former is merely an excessive deposit of pigment on different parts of the skin producing brown-coloured patches, and owing to exposure of these parts to the sun. This name has also been employed to denote patches of skin loaded with pigment, and dependent on the derangements of menstruation and on pregnancy. (e) But the dissimilarity between these two affections is so great that it is not necessary to insist further, and to avoid mistakes it merely requires to be borne in mind that such errors have been committed.

The common pityriasis (*pityriasis vulgaris, seu alba*) has been mistaken for pityriasis versicolor, the only similarity between them being probably in the name, for in the former disease the scales are much more abundant, thicker, and larger; there is not that yellow colour either, which is so prominent a character in pityriasis versicolor, and no parasite can be detected.

Syphilitic erythematous patches when they are beginning to fade are hardly at all elevated above the level of the skin, and have a yellowish colour, thus resembling very much the patches of pityriasis versicolor. And, moreover, the detection of other signs of syphilis in the patient by no means tends to clear up the difficulty, as I have several times within the last few months seen patients affected with syphilis and pityriasis versicolor at the same time. So much indeed was I struck by the repetition of this coincidence that the question at once suggested itself to me : Is a syphilitic patient more liable to take pityriasis versicolor, does he supply a soil more favourable for the vegetation of the parasite than a healthy person ?

There are two points which, when attended to, serve to clear up the diagnosis. 1. At the edges of the patches of pityriasis versicolor little spots of the eruption about the size of pins' heads are almost invariably seen ; and, 2. The parasite is detected amongst the epithelial scales. These characters are wanting in the syphilitic affection.

The *Prognosis* is favourable as regards life. By appropriate treatment also the affection can almost invariably be removed, although, in many cases, relapses occur, owing either to the treatment having been stopped before the parasite was completely destroyed, or to a renewed exposure to contagion, as, for instance, by using flannel which had previously been impregnated with the parasite. Even if the disease cannot be removed, it is

only annoying in so far as it causes itching, and is a disfigurement.

The *treatment* is very simple, and generally efficacious. Attention must be paid to the general health, and any apparent deviations corrected.

Besides attending to the general health, we must attack the local affection by local means, and this constitutes the principal part of the treatment. In cases where there is much hair on the affected parts, depilation may be had recourse to, in the same way and for the same reasons as in herpes tonsurans; but this is rarely necessary, because the disease attacks the trunk in the great majority of cases, which is only abundantly supplied with hair in persons who are very hairy.

Generally, the application of a solution of bichloride of mercury (two grains to the ounce of water) to the affected parts once or twice daily, and continued for some time after the eruption has disappeared, is effectual. Mercurial or sulphur vapour baths have the same effect, and a very good and efficient mode of treatment is to combine the application of a mercurial lotion with the use of a sulphur or mercurial vapour bath. Care must be taken, however, in the case of the latter, to avoid salivation, which is altogether unnecessary, and therefore improper. I have often succeeded in removing the eruption entirely in a short time, by causing the patient to scrub himself thoroughly with black soap night and morning in a cold bath, care being taken that all the diseased parts are scrubbed with the soap. Instead of black soap alone,

which the higher classes often object to, I make use of the following mixture :—

℞. Bichloridi Hydrargyri . . . . ℈i.
Alcoholis . . . . . ℥ss.
Saponis viridis.
Aquæ distillatæ, āā . . . . ℥iiss.
Ol Lavandulæ . . . . . ℈i. M.

This is to be used night and morning exactly in the same way as the black soap. I always direct the patient to stop at once if the gums become sore, but, although I have often used this mixture, I have never seen any sign of absorption of the mercury. The other parasiticides mentioned in previous papers are also effectual. But, whatever parasiticide is employed must be scrubbed firmly into the skin, and great attention must be paid to the continuance of its application for some time after the eruption has disappeared, else relapses are pretty sure to occur.

In cases where there have been many relapses, arsenic has been given internally, and persevered in for some time, with the view of changing that state of system favourable to the growth of the vegetable.

Finally, great attention must be paid to cleanliness during and also after the cure. Flannel which has been used should either be laid aside altogether, or washed in water containing a parasiticide. The patient should also change his flannel clothes very often, and in no case should he sleep in them.

The only remaining affection of the skin of supposed

vegetable parasitic origin is the so-called *Plica polonica*, which is very rarely seen in this country. But I quite agree with Hebra in thinking that it is not a disease any more than a dirty skin, for I believe the matting together of the hair to be owing to the person's neither washing or combing his hair; and it is not surprising that, in such cases, the spores of fungi floating about in the air should be deposited on the hair, and thus give rise to the idea that plica polonica is a disease of parasitic origin.

(a) "Manual of Animal and Vegetable Parasites," by Frederick Küchenmeister. Sydenham Society's Translation, vol. ii. p. 159.

(b) See *Medical Times and Gazette* for 1853, vol. ii. p. 630.

(c) "Clinical Lectures on Diseases of the Skin." By Wm. Jenner, M.D. *Medical Times and Gazette* for December 26, 1857, p. 651.

(d) "Précis théorique et pratique sur les Maladies de la Peau." Par M. J.-L. Alibert. Ed. 2. Tome premier, p. 413.

(e) "Leçons sur les Maladies de la Peau." Par le Docteur Hardy. Deuxième partie, 1859, p. 4.

CHAPTER X.

HAVING completed the account of the various fungous growths which are deposited on the skin and hair, and of the diseases produced by them, I now pass to the consideration of those *animal* parasites which attack the cutaneous envelope. The diseases produced by these insects are much more thoroughly understood than those due to the presence of fungi, and yet there are many points of great interest in connection with them, to which it will be my endeavour to direct attention.

The parasitic affections of the skin, due to the presence of animal parasites, are two in number:—1. Phthiriasis. 2. Scabies.

PHTHIRIASIS.

(*Disease due to the presence of Pediculi, Lice.*)

Läusesucht, Maladie pédiculaire.

There are three kinds of lice which attack the skin of man. One of these is met with on the hair of the head alone—the *pediculus capitis;* another upon the remaining hairy parts of the body, but especially on the pubis; hence its name *pediculus pubis;* while the third commits its ravages on the non-hairy parts, and is therefore called the *pediculus corporis.* It is indeed very curious that these three species should live in such close proximity to one

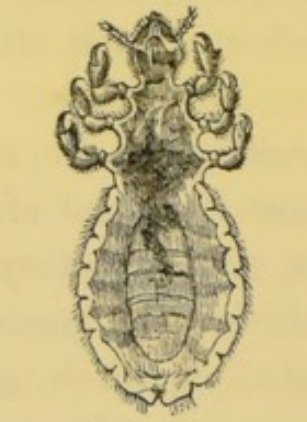
another, and yet, in no case, leave their own preserves for the purpose of poaching on that of their neighbours. No explanation has yet been given of this circumstance, and I do not pretend to solve the difficulty. One can understand why one insect should prefer hairy, and another non-hairy parts, but not why one pediculus should find its appropriate soil on the hair of the head alone, while the pediculus pubis attacks all hairy parts except the head.

The pediculi attacking the skin of the body (pediculi corporis) are the most important of these, in a clinical point of view; for, although they often live at the expense of the skin without producing any manifest eruptions, still, when present in great numbers, and especially when their ravages have been continued for some time, they give rise to a disease usually denominated Prurigo pedicularis.

The body louse—see Fig. 13—(Pediculus corporis—pediculus vestimentorum — Kleiderlaus) is whitish in colour, and varies from half a line to two lines in length. The head is irregularly oval in shape, jointed to the body, and provided with antennæ, one on each side, each having five joints, and covered with minute hairs. A number of such hairs are also seen at the edges of the head. The body is elongated; the abdominal portion very broad, its margins lobulated and covered with little hairs. From the thoracic portion, which is comparatively very narrow, there proceed six legs, three on each side. The legs are hairy, provided with four joints, and terminate in claws.

This insect secretes itself among the folds of the clothing, and only sallies forth from thence for the purpose of obtaining the means of existence at the expense of the skin of the wearer; so that when a person so affected is naked, few if any lice are to be seen on his body, although innumer-

Fig. 13.



100th parts of an inch.

Pediculus corporis (female).

able multitudes are to be seen on his clothes. The skin of the person so attacked becomes extremely itchy, the severity of the itching depending on the number of insects, and on the degree of sensibility of the cutaneous envelope. The itching induces the patient to scratch himself, at first occasionally and slightly, afterwards with fury and without ceasing. First of all, the marks of his nails are seen on the skin in the form of white, or red, or excoriated streaks, the excoriations being studded with droplets of coagulated blood. In addition to these, papulæ are formed, the summits of which are torn off by the nails, and little drops of serum or of blood are exuded and coagulate upon

them. A pruriginous eruption is, in fact, produced by the scratching. If unrelieved, pustules may form, and even, by the irritation, the neighbouring glands may become enlarged. The eruption of prurigo is met with in greatest abundance on the neck, back, and shoulders, and on those parts of the body which are tightly embraced by the clothing—a point to be attended to—as it is highly characteristic of the affection. The reason why these parts are selected is obvious; for the articles of clothing are in these situations gathered into folds, between which the lice are embedded, and where they deposit their eggs (or nits as they are called), which have the appearance of little crystalline and shining, or yellow and opaque bodies. But, although the skin is most affected in these situations, any covered portion of the body may give evidence of the eruption, for not only may the lice attack any part, but the patient may scratch parts not attacked, owing probably to a reflex itchy sensation. In cases of old standing the continued irritation gives rise to continued congestion, and this leads to infiltration of the subcutaneous tissue and increased deposit of pigment, so that the skin becomes much darker, rougher, and thicker, than is natural, the extent of these changes depending on the severity and duration of the disease.

Very erroneous notions often prevail with regard to the above affection, and for this reason, that lice often appear on the skins of persons attacked by loathsome cutaneous eruptions, the lice being in these cases merely *attracted*

by it, whereas, in the true prurigo pedicularis, it is the lice which *occasion* the cutaneous eruption. Of course the irritation of the lice and the consequent scratching may give rise to eczematous and other constitutional affections; but these must be looked upon as complications of the disease, and not as part of the disease itself. A prurigenous eruption occurs on the skins of all persons who are attacked for any length of time by lice when these are in abundance, while an eczema will only appear in the case of those so predisposed, and is, therefore, absent in the majority of cases. Eczema is the disease which is most likely to be called forth by the irritation, but there are many others which may be thus made to manifest themselves on the skin, such as psoriasis lichen, syphilitic eruptions, etc. It is on the skins of persons who are liable to these constitutional skin diseases—and more especially to watery eruptions—that the lice seem to find a highly favourable soil, and to multiply with a rapidity which is perfectly frightful. An interesting case is reported by Bryant as having occurred in Guy's Hospital. This patient had been a governess, and was about thirty years of age; the whole of her body was literally covered with lice, and the irritation and scratching, so occasioned, gave rise to excoriations and to the formation of crusts. On admission into the hospital, she was put into a warm bath, and all her clothes were taken away. Every precaution was taken to remove all the insects, but two hours afterwards her body was again covered with them, although she lay in

a clean bed. She was again thoroughly washed, but the vermin, re-appeared immediately, and all the remedies which were employed were useless. (a) Bernard Valentin gives the history of a man of forty years of age, who was troubled with insupportable itching over the whole body, and his skin was covered with tubercles. The physician in attendance, being unable to assuage the itching, made an incision into one of the small tumours, and there appeared immediately, neither blood, nor water, nor pus, but such an enormous quantity of lice of different forms and sizes that the patient almost died of fright. The same operation and with similar results was performed on the other tubercles. (b) Accounts are also given of lice having been found not only beneath the skin, but even underneath the bones of the skull and embedded in the brain-substance; but I do not myself believe in such occurrences.

Instances such as these are made use of in support of the theory of the spontaneous generation of lice, of which Devergie is a most strenuous supporter. I cannot, however, regard this theory in any other light than as an ingenious way of hiding our own ignorance. In cases such as that in Guy's Hospital, there can be no doubt that some of the insects and their eggs remained adhering to the skin, probably hidden by the crusts, and the reason why they sometimes multiply with such rapidity is, that they find on the skin of the afflicted person a soil highly favourable to their development.

Causes.—The pediculus corporis is the sole exciting

cause of the form of prurigo above described, but it must be borne in mind that prurigo is also produced by other causes, as for instance by the acarus scabiei, as we shall see hereafter. There can be no doubt that dirtiness is the most powerful predisposing cause, for lice are rarely met with amongst the higher classes. Those who live in misery, who are accustomed to bad food and impure air, as well as those whose bodies are diseased, are also selected by this animal.

Persons who are already affected with cutaneous, and especially secreting eruptions, as eczema, are extremely liable to be infested by them, as they evidently thrive better on morbid than on healthy secretions. People of high rank who have been attacked by lice must ascribe the affliction to having eruptions of this kind, or to their being in a bad state of health, which attracted the lice.

Amongst the many extravagant accounts of their ravages, I never read of one in which they attacked perfect cleanly and healthy people except in a partial and transient manner.

The *diagnosis* of prurigo pedicularis is quite easy. The lice may at once be detected, if not on the body, at all events, on the clothes of the patient, especially between the folds, where nits are always to be met with in great abundance. The situation of the pruriginous eruption is also characteristic, being met with principally on the neck, back, and shoulders, and on those parts which are most tightly embraced by the dress.

The prurigo met with in scabies, on the other hand, is seen principally on the lower part of the abdomen, upper and inner parts of the thighs, and front of the forearms; while in the ordinary *constitutional* prurigo, if I may be allowed the expression, the legs are most affected, the thighs less so, the back shows nearly as much evidence of disease as the front of the body, the chest more than the abdomen; and, curious enough, the skin at the flexures of the joints is rarely attacked.

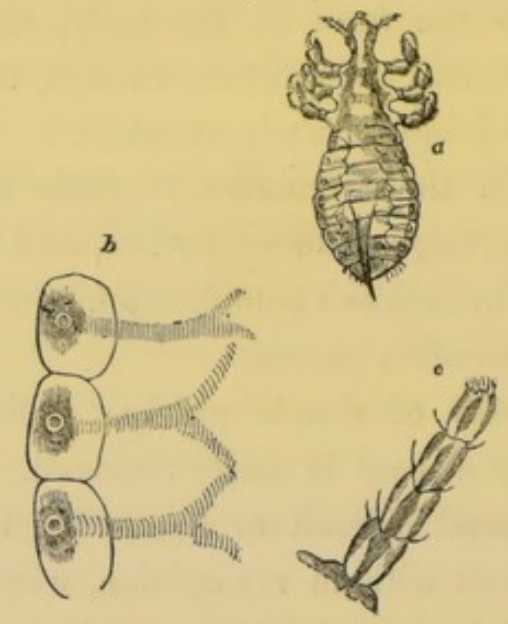
Of course in these remarks I allude merely to the diagnosis of prurigo induced by lice, and to the occurrence of these insects as a complication of other cutaneous eruptions, as so often occurs.

The *prognosis* of simple prurigo pedicularis is not serious, as the disease is easily removed. Cases where it has been found difficult or impossible to destroy the lice are only met with in my opinion, where the patient is not in good health, and generally he is the victim of some secreting cutaneous eruption, which has attracted the lice to his skin.

The head-louse—see Fig. 14—(Pediculus capitis—Kopflaus) resembles the pediculus corporis very much. It is however, considerably smaller; its legs are larger in proportion to the size of the body, and the abdomen is more distinctly divided into seven segments, which are separated from one another at the margin by deep notches. This pediculus is entirely confined to the scalp, and never attacks the other hairy parts of the body. Enormous quantities of them are often met with, and they propagate

with astonishing rapidity. Owing to the irritation and itching produced by their crawling upon, and drawing nutriment from the epidermis, they cause the patient to scratch the head. Thereby an eczema is often produced, especially in the case of those predisposed to this erup-

Fig. 14.



a, Pediculus capitis (male); *b*, Trachea and Stigmata; *c*, Antenna.

tion; crusts form, and the fluid, which exudes abundantly, glues the hairs together, while these, in their turn, are studded with nits (eggs), which adhere to them with great tenacity. The head has then a most loathsome appearance. In the above I take for granted that the eczema is called forth by the irritation of the insects; but often the reverse is the case, the pediculi being attracted by an already existing eczema, as they seem to enjoy themselves most, and to flourish best on such a soil. The patient will generally be able to tell whether the eruption or the

insects appeared first. In mild cases no secreting eruption is produced by the insects, and almost the only thing complained of is the itching.

The crab-louse — see Fig. 15 — (Pediculus pubis — Phthirius pubis — Morpion — Filzlaus) resembles in many respects the head and body lice, but its body is much broader, being somewhat shield-shaped, and there is no

Fig. 15.

100th parts of an inch.

Pediculus pubis.

distinct separation between the thorax and the abdomen. It is marked by small spines, and besides possessing six feet which resemble those of the other pediculi, there are eight rudimentary-looking ones which terminate in bundles of hairs. This insect is met with on all the hairy parts of the body except the head, but more especially on the hair of the pubis, and the parts in its neighbourhood which are provided with hair; hence the name which it has received. It does not run about like the head-louse, but grasps the roots of the hairs with its fore-legs, from which it is sometimes difficult to extricate it, so firmly does it adhere. The nits (eggs) are attached to the hairs in the same way as on the head. In withdrawing nourishment from their victims, these insects cause

considerable irritation, and the scratching which results may give rise to papular pruriginous or eczematous eruptions; but the seat of these eruptions should always lead us to suspect and seek for the pediculi on the hairs close to the skin, or for the nits, which are not difficult to find, and which will clear up the diagnosis at once.

The *treatment* of phthiriasis is abundantly simple. Many are the medicines and varied the forms which are used for this purpose. The preparations of sulphur, mercury, staphisagria, sabadilla, pyrethrum, the essential oils and alcohol, are principally employed.

Sulphur is used in the form of vapour-baths or fumigations, or the simple sulphur ointment of the Pharmacopœia may be employed.

Mercury may be applied in the form of simple mercurial ointment, or of fumigations with cinnabar, or of a lotion of the bichloride in the proportion of two or three grains to an ounce of water, the solution being facilitated by a few drops of alcohol.

Staphisagria in powder is a very good preparation, or an ointment made by mixing an ounce of staphisagria with four ounces of lard and a few drops of an essential oil, as the oil of rosemary, to improve the odour. Or an infusion of staphisagria may be made with vinegar.

Sabadilla is employed either in powder or ointment, the latter consisting of a drachm of sabadilla to an ounce of lard, and scented as above.

Pyrethrum is generally applied in powder. Any of the

essential oils may be used, the oil of rosemary being generally selected.

In the case of lice attacking the head, the hair should be cut short, if it is long and entangled—especially if the scalp is the seat of secreting eruptions, as we are thus enabled to remove many of the nits adhering to the hair, and to get more readily at the pediculi. A lotion of the bichloride of mercury, or the powder or ointment of staphisagria, or simple lard or oil should be applied, which causes the death of the insect. It is then necessary to remove the nits, which may be done by applying repeatedly either alcohol or dilute acetic acid, as Hebra recommends. These, after the use of the spirit, cease to adhere to the hair and may then be removed by combing. The head should also be repeatedly washed in warm water with soap. The eruptions of the scalp left after the removal of the insects must be treated according to their nature.

It may sometimes be necessary, however, to treat the eruption of the scalp *before* we can hope to kill all the insects; because, in some cases the pediculi and nits are hidden by the crusts, and thus protected from the action of the parasiticide.

There is just one remark which remains to be made with regard to the treatment of pediculi capitis—one which has been very prominently brought forward by Devergie—and it is this—that in those cases where the head has long been attacked by great numbers of pediculi, especially in the case of children, it is dangerous to

eradicate them suddenly, for, by so doing, internal diseases have been developed; and Devergie has seen two infants who died from this sudden cutting short of the accustomed itching and secretion. It is therefore necessary, in such instances, to cure the disease more slowly, to attack only small portions of the head at a time, and especially to avoid cutting short the whole of the hair at once. It is only in very rare instances, however, that such precautions are required.

The pediculus corporis is best attacked by sulphur vapour baths, or mercurial fumigations, or the powder or ointment of staphisagria or pyrethrum. If one of the powders is used, warm baths should be superadded. The clothes should be purified by exposing them to a temperature of 150° Fahrenheit, or by sprinkling one of the above mentioned powders over them; or as the common people do sometimes, and which Küchenmeister has seen successful, by burying them in hay for several weeks. Another method is to put washing clothes into boiling water and to expose cloth clothes to the steam rising from a boiler. The pruriginous eruption which the lice have occasioned will disappear after they have been killed; but any constitutional eruption, such as eczema, which may have been called forth by the irritation of the scratching, or which existed previous to the occurrence of the lice, must be treated on general principles. When an eczema exists, it may sometimes be necessary to treat it first of all (on the same principle as an ordinary eczema) before attacking the pediculi; for they are very apt to lie hidden

among the crusts, and soon multiply again, giving as much annoyance as before.

It not unfrequently happens that, although all the pediculi have been killed, the itching continues in a mitigated form, owing to the cutaneous nervous filaments having contracted the habit, if I may be allowed the expression, of calling forth itchy sensations. If this is the case the patient should be directed to wash the parts with a lotion of hydrocyanic acid (in the proportion of 10 to 30 minims of the dilute acid of the Edinburgh Pharmacopœia to the ounce of water) which will generally act as a charm, immediately removing the hyperæsthesia of the skin.

The pediculus pubis is easily killed by rubbing into the roots of the hair a lotion of bichloride of mercury, which is invariably effectual, provided it be brought into direct contact with all of them. The application should be made not only to the hair of the pubis, but also to that in the neighbourhood of the scrotum, perinæum, and anus, and should be repeated daily for a week. But if any excoriation exists, care must be taken not to use the lotion too freely, else salivation may be induced. In cases where there are many excoriations or abrasions it is safer to use an ointment of sulphur or staphisagria, or an infusion of the latter, or the oil of rosemary. Mercurial ointment is the preparation most in vogue for this complaint, but it is a dirty application, and I never employ it.

There are very many other remedies which have been successfully used, but it is quite unnecessary to allude to

them further, for those already mentioned are amply sufficient when properly used, to kill the pediculi, no matter how numerous they may be.

(a) Gazette Médicale du 12 Mai, 1838.
(b) Dictionnaire des Sciences Médicales, No. 42, p. 7.

CHAPTER XI.

SCABIES.

(Disease due to the presence of the Acarus Scabiei.)

Itch, Gale, Krätze.

Scabies is a disease which, although met with principally amongst the lower classes, is one of the most frequent of the parasitic affections of the skin. It is indeed sad to reflect upon the number of cutaneous diseases which are brought about almost solely from want of proper attention to cleanliness. Far be it from me to say that dirtiness is the exciting cause of scabies, but it is quite evident that the itch insect is rarely met with amongst the higher classes, unless after exposure to contagion among the dirtier and lower ranks of life. It is much more frequent in some countries than in others, and I shall have occasion to describe a variety of scabies which is comparatively little known in this country, a loathsome and frightful malady, the penalty paid for long-continued and excessive filthiness and neglect.

Scabies has long been known, and descriptions of its ravages are handed down to us from the remotest ages. There is, however, much difference of opinion as to the time when the true cause of it was determined, that is to say, when the insect was first detected. Some are of

opinion that it was known to Avenzoar who lived in the twelfth century. According to Hebra, however, it was first discovered by our countryman Moufet in the year 1663. Very many authors have also been said to have detected the insect, but so recently as 1812, much doubt existed as to whether there was, or was not, an itch-insect. At this time a considerable prize was offered by the Parisian Academy of Sciences for its demonstration. M. Galès, an apothecary at the St. Louis Hospital, tempted by the reward, defrauded the academy and gained the prize. He concealed beneath the nail of his thumb the common cheese mite, opened with a lancet the pustule of a patient affected with scabies, and produced the insect from beneath his nail, pretending to have removed it from the patient. The discovery of the fraud was made by Raspail, but not for seventeen years afterwards, and a little later by Gras. In 1834 Renucci, a young Italian student, detected and demonstrated the parasite in its furrow beneath the epidermis.

These remarks apply to the female itch insect. The male, according to Hebra, was first discovered by Danielssen and Boeck in cases of Norwegian scabies, but M. Bourgogne, who makes such beautiful microscopic preparations, and for which he gained a medal of the first class in the Paris Exhibition of 1855, informs me that he was the first to detect it. According to Devergie, on the other hand, the honour is due to M. Lanquetin, a pupil of the St. Louis. It is really very difficult to know who was the first to discover it, but this at all events is

pretty certain, that there is hardly a single discovery in the whole range of medical science which has not been claimed by at least one Frenchman.

The study of the habits of the insect is very interesting, and these have been carefully investigated by Hebra, from whom I draw largely in the following remarks :— When the female is placed on the skin it seeks a suitable spot, and then, its head raised at right angles to the skin, it penetrates into the deeper layers of the epidermis where it lies embedded, and derives its nourishment. If impregnated, as is usually the case, an egg is soon laid, to make room for which the insect burrows a little further. Each day a fresh egg is laid, and each time the insect penetrates further, leaving its deposited eggs to occupy the space formerly inhabited by itself. The direction of the canal thus produced is oblique, the portion first formed being nearest the surface. As the old epidermis is thrown off and new layers are formed at the expense of the deeper strata, the first laid eggs gradually approach, and finally reach the surface, while the recently-deposited ova, owing to the oblique direction of the canal, still remain covered by epidermis. In this way the eggs reach the surface just about the time when the young one has come out of its shell. The newly-hatched acarus (I refer to the female) having arrived at the surface crawls about the skin, meets its mate, becomes impregnated, and then burrows likewise, and repeats the process just described. The length of time which usually intervenes between the laying and the hatching of an egg

is fourteen days, and as the acarus lays generally one egg daily, there are rarely more than fourteen eggs in one canal, although there may be many more egg-shells, the acari having escaped.

On cutting out one of these canals, therefore—cuniculi, sillons, milbengänge, as they are called—and examining it with the microscope, the female insect is found at the extremity furthest away from the opening, which it originally made in penetrating the epidermis, and behind it, its eggs in various stages of development, those nearest the acarus being in the most primitive condition. Besides the acarus and its eggs, numerous little oval or rounded blackish spots are seen, which are supposed to be the excrement, and the whole forms a very beautiful preparation under the microscope. Some female, and all male acari go about free on the surface of the epidermis, and it is only after impregnation, in most instances, that the female burrows for the purpose of depositing its eggs. After the female has once entered its canal it is unable to recede, owing to the little spines on its dorsum, which project backwards. Sexual intercourse between the male and female takes place on the surface of the epidermis, and Hebra states that in a case of Norwegian scabies, he had once the opportunity of seeing them in contact, although, as he says, "he could not decide whether or not they were in the act of copulation." (a)

The *eggs* of the acarus are about $\frac{1}{25}$ of a line broad, and $\frac{1}{1}$ long, according to Förster, but they vary much in size according to their age and the length to which the

process of development has gone. For just before the larva has burst its egg, the latter is almost as large as the male acarus. In the earliest stages the egg is very small, and filled with a granular-like matter—see Fig. 16, *a*.

Fig. 16.

a, Egg in the first stage; *b*, in the second stage (the granular contents in *a* and *b* are yellow in the original); *c*, ditto in third stage, insect becomes apparent; *d*, ditto in fourth stage, insect has broken the shell; *e*, egg-shell after escape of acarus.

At a later period, as it increases in size, its contents seem to shrink and recede from the shell, and to have a distinct enveloping membrane. They have a bright yellow colour and granular appearance, thus contrasting strongly with the clear almost colourless walls of the egg-shell without —see Fig. 16, *b*. Soon after this the head and legs of the acarus become distinctly apparent, and at last the whole insect within the egg-shell, a most beautiful microscopical appearance—see Fig. 16, *c* and *d*. Finally, after the acarus breaks loose, the egg-shell is seen shrivelled up and marked usually by two longitudinal slits made by the insect in effecting its escape—see Fig. 16, *e*.

The larva, or young acarus—see Fig. 17—differs from the full-grown insect in that it has only two hind legs instead of four. By and by, however, it throws off its coat and appears with eight legs. Sometimes the full-grown insect with eight legs may be seen inside its old

Fig. 17.

Larva, or young acarus—having only two hind legs.

six-legged skin. This renders the history of the development of the acarus pretty complete.

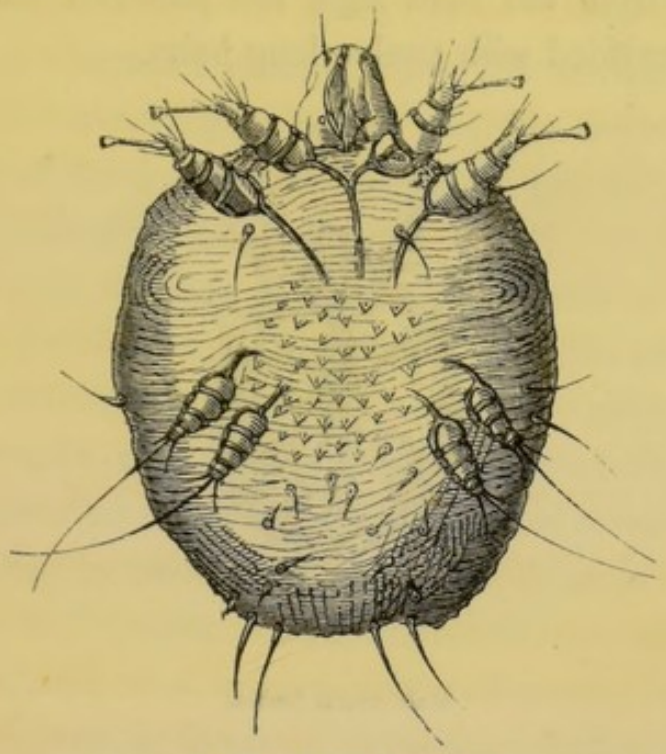
The full-grown itch insect (acarus scabiei, sarcoptes hominis) is just visible to the naked eye, having a yellowish-white colour. Under the microscope, the same tint is detected, but the limbs and head are darker, having a reddish-yellow appearance.

The following remarks apply to the female — see Fig. 18:—In size it varies from $\frac{1}{5}$th to $\frac{1}{4}$th of a line in length, and from $\frac{1}{10}$th to $\frac{1}{6}$th of a line in breadth. It is almost egg-shaped, being broader anteriorly than posteriorly: anteriorly it is provided with a head and four legs, two on each side of, and close to, the head.

The *head* projects considerably beyond the body; its edge is rounded, and marked by a central fissure corre-

sponding to the mouth, which is provided with mandibles, on each side of which are several hairs. No eyes have been detected.

Fig. 18.



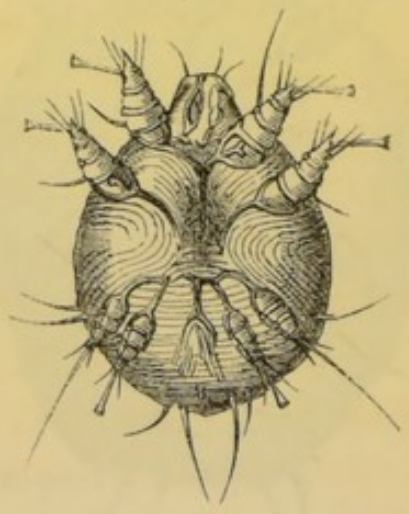
Female Acarus Scabiei.

The *legs* are eight in number, four anteriorly and four posteriorly. They have a conical shape, tapering towards a point, and each is composed of several jointed segments. The four anterior legs are provided with stalked suckers, and from the extremity of each of the posterior legs projects a long curved hair. Each of the anterior legs is also provided with several small hairs springing from beside the root of each sucker.

The *body* is marked by numerous regularly disposed, wavy lines, and the dorsal surface, which is convex, is

provided also with numerous little angular spines, as well as by little round tubercles, from each of which springs a small conical spine. From each side of the body two hairs project and four posteriorly, so that, including those springing from the hind legs, the posterior half of the body is provided with twelve long hairs.

Fig. 19.



Male Acarus Scabiei.

The male—see Fig. 19—differs from the female in so far as it is considerably smaller, the wavy lines on the body are not so numerous, the inner pair of posterior legs are provided with stalked suckers like the anterior ones, and the parts corresponding to the genital organs are very distinctly marked.

(a) *Allgemeine Weiner Medizinische Zeitung*, August 28, 1860, p. 280.

CHAPTER XII.

In the last chapter I entered upon the consideration of scabies, endeavouring to sketch out the history of the discovery of the insect—its habits, its general features, and the mode of its development.

I come now to a point of some importance in a clinical point of view—namely, the *symptoms*. The symptomatology of scabies has been very imperfectly given in most English works, and is calculated to mislead the practitioner in arriving at a diagnosis. What is more common than the description of the disease as a vesicular eruption, when it is well known that vesicles are not met with in every case, and, what is more, that vesicular are not even the most common forms of eruption. Thus, from the statistics of Hardy, who has charge of the whole of the patients of the St. Louis Hospital who are affected with scabies, papular, that is, pruriginous eruptions, are met with in the proportion of 99 times in 100 cases; while vesicles are present 90 times, at the most, in a like number; and it must be evident to every one who has carefully studied the disease that these statistics are correct. We cannot be too cautious in our investigation of what are apparently vesicles. I have very frequently seen papules, slightly translucent on their summits, mistaken for them even by authorities on skin disease; and

I well remember having lately seen one of the most distinguished dermatologists of the day, who has written one of the largest and best works on skin diseases, mistake small cauliflower excrescences of the glans penis for herpes præputialis, the vesicles in this case being, as he said, perfectly typical, while the use of a magnifying glass would at once have prevented the error. When, after contact with a person affected with scabies, the itch-insect reaches the skin of the individual so exposed, it burrows in the epidermis, and produces irritation. This irritation gives rise to the formation of some papules or vesicles, and also induces the patient to scratch himself, and the scratching is the cause of the appearance of eruptions, the character and situation of which alone often lead us to a correct diagnosis. The severity of the symptoms depends partly on the length of time that the person has been affected; that is to say, upon the number of acari which are committing their ravages upon him, and partly on the degree of sensibility of the cutaneous envelope. There are persons who are little annoyed by the insect, and others, on the contrary, who are in perfect agonies on account of it.

The acarus may flourish on any part of the skin, and it has been seen even on the face and head, although this is denied by many English authors. The hair does not deter it, for we see that the same insect attacks sheep and other animals which are abundantly supplied with wool or hair. It has, however, seats of predilection—those parts, namely, where the skin is delicate and easily

penetrated—viz., the fingers, especially the inner surfaces, and the folds of skin passing from one finger to the other. The wrists and palms of the hands are also commonly affected. Next to these parts the penis is most frequently attacked in the male and the nipple in the female. It probably attacks very frequently the genital organs of the female also, but from motives of delicacy these parts have not been much examined. The hips, the feet, the umbilicus, and the axillæ are also very usually attacked.

The canals (cuniculi) which the female acari burrow have generally a serpentine shape, and are usually from half a line to three lines long. Hebra, however, has seen them three or four inches in length, and he mentions that they sometimes completely surround the wrist in the form of a bracelet. (a) I have never had the opportunity of seeing them so long as this, but my friend Dr. Reid had a case of the kind a few weeks ago. These canals have generally a whitish dotted appearance, the dots corresponding to the eggs in the canals, and not to orifices, as some have supposed, and at the extremity of each canal is a little whitish elevation, which corresponds to the female acarus itself. It is useful to clean the skin of the parts before endeavouring to detect the cuniculi. After the death of the mother insect the epidermis covering the canal gives way; there is then left merely a depression bounded on each side by a ragged edge of epidermis, and, as these edges become dirty, the remains of the cuniculus appears in the form of a dirty ragged line.

The irritation of the insect often produces, as before stated, the eruption of a few papules or vesicles in the vicinity. In the vesicles a young acarus is sometimes detected, and it is in these, according to Hebra, that it throws off its coat, and appears as a full grown acarus with eight legs.

Soon after the invasion of the insects, the person affected begins to complain of itching. This, at first slight, gradually increases in severity. It is sometimes almost entirely absent during the day, but becomes quite intolerable at night when the patient becomes warm in bed. This augmentation of itching at night, which is such a characteristic symptom, is explained by some on the supposition that the insect, remaining dormant during the day, commences operations at night. It is quite a mistake, however, that the female escapes from its canal at night, and creeps about upon the skin; for, as previously stated, once it has entered its canal, it can never return. It is very probable, however, that it may be caused by the male acari, or the larvæ running about, or by the impregnated female burrowing further into the epidermis.

The itchy sensation is not confined to the parts where the acari are deposited—there being a general feeling of itchiness all over the body. Some say that this is owing to the excrement of the insect being absorbed and circulating with the blood, but such an absurd hypothesis is not tenable. Devergie seems to coincide in the opinion of Bourguignon that the acarus probably contains a kind

of venom which, being thrown out, mingles with the circulation and gives rise to itching and eruptions on parts of the body where there are no acari. He, however, admits that the attempts at inoculation with "powdered acari," (b) have not succeeded, and it seems to me that such ingenious and groundless theories are quite unnecessary, for we know that itching at one part of the skin, in cutaneous affections in general, is very apt to give rise to general itching, being manifestly due to a reflex sensation.

The pruritus induces the patient to scratch himself, and it is the scratching which produces those eruptions which are the most evident marks of the disease. It is of use to attend to the character and situation of these eruptions, as by this alone we can often diagnose the disease. As before mentioned, papular or pruriginous eruptions are the most common. The prurigo is met with principally on the forearms, lower part of the abdomen, and upper and inner parts of the thighs, there being, indeed, few cases of scabies of long standing, in which these parts are not affected more or less.

Vesicular, are next in frequency to papular eruptions. The vesicles are detected in greatest abundance on or about the fingers and on the nipples of females, and when seen in these situations scabies should always be suspected.

Large (ecthymatous) pustules are often met with in children whose skins are delicate, and especially on the hands, feet, and hips. Ecthyma, limited to these parts, is

almost pathognomonic of scabies, and indeed, in all cases of ecthyma, the probability of the acarus being the cause should be kept in view. Nurses, affected with scabies of the hands, and carrying infants in their arms, are very apt to communicate it to them, and this is the probable reason why ecthyma is so common on the hips of infants affected with the itch. (c)

The above are the most common eruptions produced by the scratching, but, in addition to these, a latent diathesis is very apt to be called forth by the irritation, as for example, an eczema, an impedigo, or a lichen. There are, therefore, two sets of eruptions in scabies—those produced by the irritation of the parasite alone, and which are scanty and ill-defined, and those produced by the scratching, which are in proportion to the length of time the disease has existed, and to the sensibility of the cutaneous envelope. These latter, when well defined, are highly characteristic.

Such are the symptoms of scabies as usually met with in this country, but there is a variety of the disease, which is rarely seen in England, and which is named Scabies Norvegica (Norwegian Scabies), Borkenkrätze, Scabies crustosa, Scabies pecorina.

This variety is not, however, limited to Norway, but has been met with all over Europe. It is rare, and only thirteen cases of it have been recorded. It is much more serious than the ordinary affection, of which it is merely an exaggeration, or advanced stage, being due to the presence of the same insect in persons who are excessively

filthy, and who have neglected to apply for treatment. Of the cases recorded, two died—one of pneumonia, the other of hyperæmia of the brain, brought on, no doubt, indirectly by the disease.

A very interesting case of this kind is related by Bergh of Copenhagen. (d) In this case, when the affection was fully developed, the greater portion of the skin of the body was thickened, the natural furrows increased in depth, the pigmentary deposit greatly augmented, the colour in some parts resembling that of the skin of a Mulatto, and a fine white desquamation covered the surface. Here and there papules were seen, some with dots of coagulated blood, others with whitish crusts on their summits. Vesicles also and pustules were detected. In the crusts, portions of acari and their excrement and eggs were found. The scalp was almost covered by a large crust, from four and a half to one and a half millimètres thick, which adhered firmly, was of the consistence of the bark of a tree, but harder on the upper than on the under surface. Its colour was principally white, but here and there yellow, or coloured with blood. Numerous furrows were detected on its surface, and it was studded with fine openings for the hairs, which were healthy but glued together. The under surface was uneven and prominences projected into depressions in the scalp. This was much reddened, and exuded a clear, thin fluid. On the under surface, and in the furrows of the upper surface of the crusts, multitudes of acari were seen.

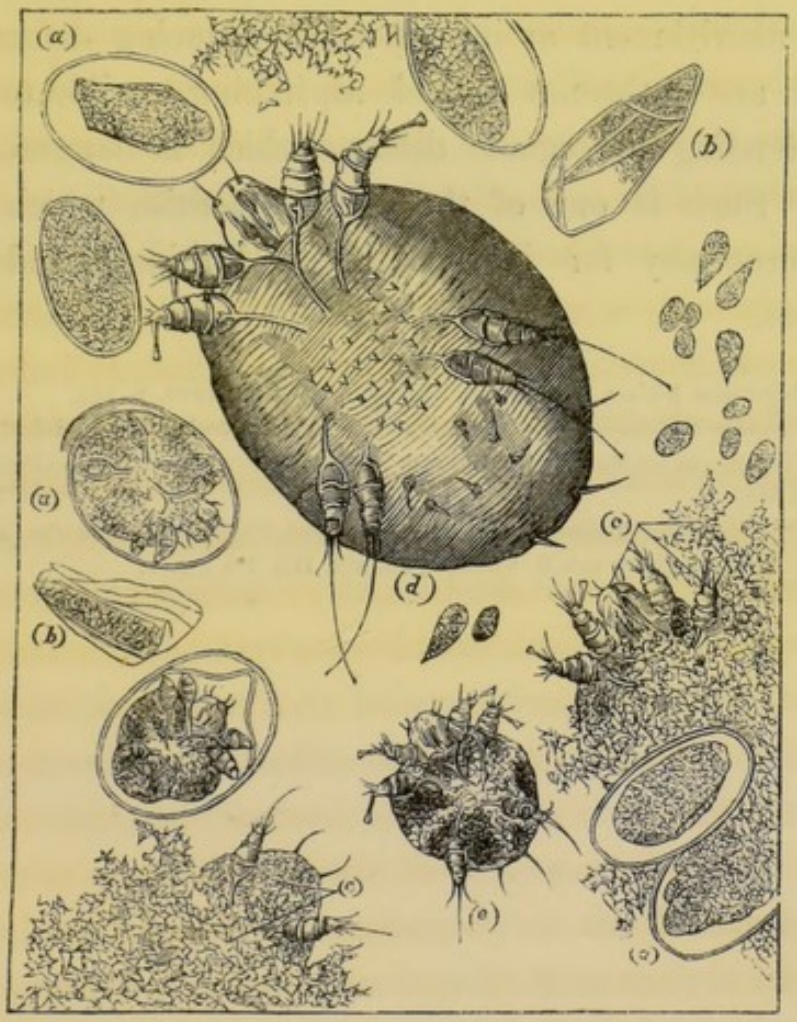
The subject of this complaint was sixty years of age, and had twice been cured of scabies. Two years previously he slept in a dirty bed, after which the affection commenced. He was frequently treated, but the head, which was the focus of the disease, not being touched, the treatment was ineffectual.

He complained of intolerable itching, increased by motion or warmth—so great an effect, indeed, had warmth upon him, that even in the coldest winter night, he lay covered with a thin sheet only, and even then he had frequently to leave his bed. In order to be able to scratch himself better, he was in the habit of sleeping without a shirt, and when he went out of doors he avoided the sun sedulously for it increased the irritation. During the greater portion of the time he was in the hospital, he sat upright in bed rubbing and scratching his head and face, and indeed the whole body, neither the soles of the feet, the palms of the hands, nor even the glans penis being spared. When asked to desist scratching for a minute, it was with the greatest difficulty that he was able to overcome the all but irresistible desire, and when he did desist, so great was the effort, that he was immediately seized with cold and shivering fits.

On examining the crusts, epidermic cells, molecular matter (mostly fatty), and here and there blood corpuscles were seen, but they were principally composed of the acarus, its excrement, eggs, and egg-shells. (The accompanying woodcut—see Fig. 20—is that of a crust from a case of this kind, which occurred in Würzburg.)

A piece of the most superficial dense part of the crust, less than half a line square, contained 2 female, 8 six-legged young, and 21 pieces of acari, 6 eggs, 53 egg-

Fig. 20.



Crust from a case of the so-called Scabies Norvegica; *a a a*, eggs of the acarus in various stages of development; *b b*, egg-shells; *c c*, fragments of acari; *d*, female acarus; *e*, larva. The little oval or irregularly-shaped masses are supposed to be the excrement.

shells, and about 1030 pieces of excrement. "In the deepest and softest parts of the crusts, amongst the skeletons of deceased generations . . . partly in

holes and passages, partly between particles of the crust, partly also on their free surface, masses of living acari wallowed and tumbled about." Who can conceive of a more frightful malady than that of being covered with millions of insects crawling over the skin, and deriving their nourishment at its expense, producing deformities which are loathsome to look at, itching terrible to bear, and tending to organic disease which is dangerous to life? Such is one of the awful penalties which poor creatures pay for long-continued filthiness and self-neglect.

(a) *Allgemeine Weiner Medizinische Zeitung*, August 28, 1860, p. 281.

(b) "Acarus broyés,"—"Traité Pratique des Maladies de la Peau." Ed. 2, p. 564.

(c) "Leçons sur les Maladies de la Peau." Par le Docteur Hardy. Deuxième Partie, p. 191, 1859.

(d) "Archiv. für Pathologische Anatomie und Physiologie, und für Klinische Medicin" herausgegeben von R. Virchow, bd. xix. Hft. 1 u 2 p. 1.

CHAPTER XIII.

In the preceding chapter I detailed the symptoms of scabies, and gave a short sketch of that severe form of the disease which goes under the name of Norwegian Scabies. Although supposed to be met with only on the continent of Europe, it is nevertheless sometimes seen in this country, and an interesting case of the kind was described the other day by Sir Henry Cooper. (a)

Causes.—It is only in recent times that the itch-insect has come to be regarded as the sole exciting cause of scabies. Devergie believes in the spontaneous development of this disease. "And how can it be otherwise," says he. "The first person who was attacked by scabies could not have got it by transmission, and if the itch was once developed spontaneously, can it not be so twice, three times, a hundred times," etc. (b) But Devergie begs the question, for the first person who had scabies must have got it by transmission of the itch-insect, the transmission not being necessarily from man to man.

Scabies is met with almost exclusively amongst the lower classes. Contact for a moment with one affected is not sufficient to give rise to the disease in the person so exposed. Some time is usually necessary. Thus it is oftenest caught by sleeping with, or in the bed of an affected individual, or by using his clothes; and nurses

with scabies on the hand are apt to communicate it to the hips of infants, as their hands are in prolonged contact with these parts in carrying them. It is much more frequent in males than in females, and in winter than in summer. According to Hardy's statistics, it occurs eighty times in winter to ten times in summer, and this is owing to the lower classes sleeping much more together in cold weather. In this country scabies usually commences on the hand, and from it extends to other parts; in France, according to Hardy, it oftenest commences on the penis, and from thence is transmitted to the hands by the scratching.

The *diagnosis* of scabies should in general be quite simple. When a person comes to us with pruriginous eruptions on the belly, inner parts of the thighs, and front of forearms—a well-marked eruption of ecthyma on the hands, and complains of itching becoming intolerable at night, we can say to him, without further examination, that he is affected with scabies. I had occasion the other day to see a boy who had a pruriginous eruption of this kind, and round red spots on the hands which I recognized as the remains of ecthymatous pustules. He told me that he was troubled with itching at night, and it was quite easy, without further examination or questioning, to diagnose the case to be one of scabies modified by treatment. In the female, the appearance of vesicles, or papules, or excoriations, or eczematous eruptions on the nipples, are very characteristic as confirmatory of scabies, and papules or pustules on the penis of the male.

Ecthyma on the hips of an infant is always a suspicious circumstance, and the state of health of the nurse should at once be investigated.

We can, then, from the eruptions produced by the scratching alone, diagnose scabies at once, when these are well marked. But if there is any doubt, an examination will usually detect the furrows or cuniculi of the insect from which the female can be extracted. Even the remains of a cuniculus, such as I have described (see Chapter XII., p. 129), is, to the accustomed eye, almost pathognomonic. It is best to look for the cuniculi on the hands, or in the male on the penis, where, when present, they are very easily detected.

Sometimes, when present only in small numbers, these canals cannot be found, and, from the short duration of the disease, secondary eruptions have not begun to be formed, the only symptom being itching at night. In such cases, however, there will generally be some circumstance which leads us to suspect scabies; as, for instance, the patient's bed-companion, or play-fellow, being affected; for, in equivocal cases, inquiry should always be made with regard to the state of health of the friends of the patient.

In doubtful cases it will be well to treat the case for scabies, and the result will verify or disprove the diagnosis. But such treatment to be of value diagnostically, must be efficiently, and not partially, carried out. The following, then, are the principal points to be attended to, and are mentioned in the order of their diagnostic value:—The detection of the cuniculus containing the insect, or the

remains of these canals; ecthymatous pustules on the hands, or on the hips of children; prurigo principally attacking the parts before mentioned; itching becoming intolerable on getting warm in bed; papules or vesicles on the hands; eruptions on the penis of the male, or the nipple of the female.

Of course any kind of eruption may appear in a case of scabies, and on any part of the body; but those above mentioned are the most characteristic, and of the most constant occurrence in connection with the acarus.

The *Prognosis* is never serious, as the disease occurs in this country; but when neglected, it may occasion great torment from the itching, entirely depriving the patient of sleep, and the scratching gives rise to very extensive, varied, and loathsome eruptions. But the treatment is so simple that the disease may now be cured in an incredibly short space of time, although the secondary eruptions may be long of disappearing. I mentioned already that a constitutional eruption, such as eczema, may be called forth by the irritation, in persons so predisposed; and the prognosis of these is, of course, more serious, as regards a cure, although not generally dangerous to life. I have already stated the proportion of deaths in the recorded cases of Norwegian scabies, the prognosis of which is always more serious.

Treatment.—As a general rule, nothing can be easier than the cure of scabies. The principle to be kept in view is, to make such applications to the skin as will not irritate it too much, but which will reach the parasite and

kill it; after which, the exciting cause of the disease being removed, the secondary eruptions generally disappear without treatment. In some cases, however, when these are very severe, as, for instance, when large ecthymatous pustules have been developed in abundance, it may be necessary to allay them before applying a parasiticide which is necessarily more or less irritant in its nature. This is done by antiphlogistics, warm and emollient baths (prepared by putting a couple of handfuls of potato-starch into a warm bath), and cataplasms locally, while opium (internally) is sometimes necessary to allay the itching for a time and the desire to scratch the skin consequent upon it. The preparation to be used, and the manner of its employment, must vary according to the degree of delicacy of the skin of the patient; for in the case of those whose cutaneous envelope is fine and sensitive, it is much better to take a little longer time to destroy the acari, than, by irritating the skin too much, to risk the production of manifold annoying and often obstinate eruptions.

In healthy adults, such as one frequently meets with amongst the working classes, whose skins are coarse and not over-sensitive, who are not subject to cutaneous eruptions, such as eczema, and in whose cases the secondary eruptions produced by the scratching are not very severe, the treatment recommended by Hardy, the most rapid and the most effectual in killing the acari, may be put into practice. The whole body of the patient is first of all thoroughly scrubbed with good black soap,

and this process should be continued for half an hour. He is then put into a warm bath and kept there for half an hour also, after which the whole body is rubbed over with the following modification of the pomade of Helmerich :—

℞. Subcarbonatis potassæ, ... ℥j.
Sulphuris, ... ℥ij.
Axungiæ, ... ℥xij.

The next morning the patient takes a warm bath to remove the pomade, and the cure is complete as regards the destruction of the acari, while the secondary eruptions soon disappear. The genuine pomade of Helmerich is one-third stronger, but it is rather too irritant. The potash in the black soap and in the pomade, acts as a dissolvent to the epidermis, thus allowing the sulphur to come into more immediate contact with the acarus, while at the same time, it is an irritant to the insect. The warm bath is of service in washing off the black soap and dirt, and in causing the removal of the softened epidermis. Patients in private practice will often be intolerant of this kind of treatment, and it is besides quite inapplicable to children and females, and to men who have delicate skins, as well as to those who are subject to constitutional affections of the skin. In these cases we must use milder means, although the destruction of the parasite is a slower process. It is better, however, to proceed slowly and surely, than by means of powerfully irritant treatment, to kill the acari at once, and at the same time to produce eruptions which may last for months. Under

these circumstances the patient should clean himself thoroughly in a warm bath with ordinary (being much less irritating than black) soap, and then the lotion recommended by Vleminckz, of Belgium, with which the Belgian army is treated, should be applied. It is the following:—

℞. Calcis, ... ℥ss.
Sulphuris, ... ℥j.
Aquæ, ... ℥viii.

Boil and stir constantly till a homogeneous mixture is produced, then pass it through a sieve. This quantity is more than sufficient for one person. Some of it should be rubbed into the skin, but not too roughly, and it is much less irritant than Helmerich's ointment. The application is to be repeated every night for several evenings, and the parasite dies without secondary eruptions being produced.

Hebra's modification of Wilkinson's ointment is a very good one, especially so when the person affected is predisposed to eczematous eruptions, or where the scratching has already brought them out. It is the following:—

℞. Sulphuris.
Olei fagi, āā . . . . . ℥vj.
Saponis viridis.
Axungiæ āā . . . . . ℔j.
Cretæ . . . . . ℥iv. M.

In this preparation the potash in the black soap acts, as before stated, as a dissolvent to the epidermis and the chalk in removing it mechanically, the tar counteracts

the tendency to, or cures the existing eczema, and the sulphur destroys the acari. This ointment should be well rubbed in, after the skin has been prepared for it by cleaning the body with common soap in a warm bath. The patient may either wash off this ointment soon afterwards, or may leave it on over night and wash it off in the morning, in which latter case the cure is more rapid. In either case, however, more than one repetition of the above process is generally necessary to effect a cure.

When females or others with delicate skins are affected, and when the smell of sulphur is objected to, sulphur soap may be used, which is nicely scented, and the disagreeable odour concealed. The body should be scrubbed every night with it, in a warm bath. This is the mildest of all the methods of treatment, and requires to be frequently repeated to effect a cure.

Or instead of the above, the ordinary sulphur ointment may be used, adding to it an aromatic oil, as oil of lavender, oil of carraway, or oil of cinnamon, in the proportion of a scruple to an ounce of the ointment.

It will be seen that all these applications contain sulphur as the active agent in the destruction of the parasite. Other substances also destroy it; but sulphur has been almost unanimously decided to be the most effectual.

I do not think it necessary to discuss the experiments which have been made on the length of time various preparations take to kill the acarus, after the removal of that insect from the body, because it is found to be one thing to kill the insect when it is brought into immediate

contact with the medicine, and another to destroy it when it lies embedded in the epidermis.

But whatever preparation is used, it is necessary that it be rubbed into the skin of the *whole body*, with the exception of the head, which is not usually attacked; for if one impregnated acarus is left unscathed, the disease will soon be as bad as ever.

It is needless to refer to any more of the very numerous methods of treating scabies, for with the above selection, any case of scabies may be successfully treated.

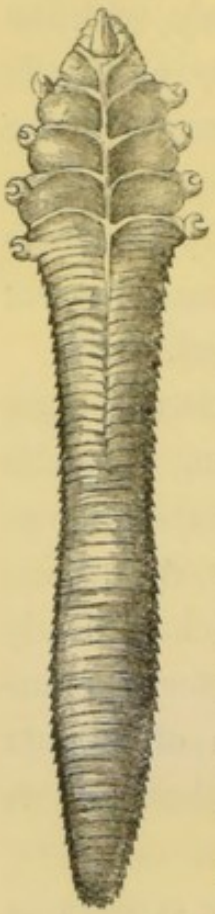
Finally, it is necessary to destroy the insects and eggs, attached to the clothes of the affected person. For this purpose they should be exposed to hot air (at the temperature of 150° Fahrenheit) for some time; or, if washing clothes, they should be put into water which is nearly boiling, in which the acari cannot live. Or, for this purpose, they may be exposed to the action of sulphur vapour; but it is apt to discolour the clothes, and to give them a disagreeable odour.

In the treatment of Scabies Norvegica, the crusts may be removed by repeated baths, opiates being given in the intervals to allay the itching. A parasiticide, containing sulphur as the active agent, and tar to counteract the eczematous eruptions, should then be used. It is not necessary, however, to enter into minutiæ with regard to this variety, for it is merely an exaggerated form of scabies, and one which is decidedly rare; while each case must be more or less treated on its own merits.

The only other animal parasite which takes up its

abode upon the skin, is the Acarus Folliculorum, the insect met with in the glands amidst the sebaceous matter—see Fig. 21. I do not intend to refer at any length to this insect, because it does not give rise to any morbid condition of the glands. That it *may* be met with in the follicles of those who are affected with acne, is doubtless the case; but it is equally certain that it plays no part in the production of that disease. I have examined the sebaceous matter (from the glands of the nose usually) of many persons taken at random, and have detected the parasite about once in every five examinations. Of course, in many of those whom I examined, the acarus was probably to be met with, had I searched for it among the sebum taken from a larger number of glands; but, as far as my own observation goes, I am not prepared to agree with those who assert that it may be detected in the sebaceous follicles of all persons.

Fig. 21.



Acarus Folliculorum.

(a) *Medical Times and Gazette.* August 24, 1861.

(b) "Traité Pratique des Maladies de la Peau." Par. Alph. Devergie. Second Edition, p. 565.

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