incomplete combustion of glucose. The names and doctrines of Prout and Pavey are unnoticed. He inclines to Bernard's view. With regard to the vexed question of the quantity of urea and uric acid excreted, he believes that, if the whole quantity of urine passed in the twenty-four hours be taken for observation, the proportion of urea and uric acid in the urine will be much as in health. The diseases of the eye in connexion with diabetes are examined at some length. A slighter form of amblyopia appears in the early stages of the disease, which may disappear rapidly and even suddenly, but sometimes persists and becomes serious. A severe form, only met with in confirmed disease, affects, like the former, both eyes, but for the most part unequally. The ophthalmoscope shows the optic papilla to have a nacreous appearance, to be smaller than natural, sometimes excavated, with its border irregular; the vessels appear tortuous. Jaeger and Desmarres have found the retina the seat of hæmorrhages and fatty degeneration. The name of our countryman France is of course quoted in connexion with the diabetic cataract. The experiments of Richardson for the production of artificial cataract by introducing substances into the blood which, either by a direct action on the lens or simply by increasing the density of the aqueous humour, render the lens opaque, are criticized. Lecorché, who has made the same experiments, but has never succeeded in producing such a result, not even in cases where he has been positive that sugar was present in the humours of the eye, attributes the cataract to the "general deterioration of the organism," not to any special action of the sugar on the lens.

After examining various plans of *treatment*, and giving especial preference to that of Bouchardat, he ends by recommending absolute restriction to nitrogenous and fatty food with gluten bread; regular exercise, or, if possible, gymnastics; water cure; dry warm air; employment of alkalies, Vichy water; frequent use of mild purgatives; administration of quinine and iron.

REVIEW VI.

1. *On the Parasitic Affections of the Skin.* By T. M'CALL ANDERSON, M.D.—London, 1861. 8vo.
2. *Skin Diseases of Parasitic Origin; their Nature and Treatment.* By W. TILBURY FOX, M.D. London. pp. 210.
3. *On Ringworm, Scall-head, Baldness, and other Parasitical Diseases of the Head and Face.* By GEORGE ROSS, M.D. London. pp. 138.
4. *A Guide to the Treatment of the Diseases of the Skin; with Suggestions for their Prevention.* By THOMAS HUNT, F.R.C.P. London.

IN all countries, and at all times, skin-diseases have been the object of peculiar abhorrence. In earlier ages, those who suffered from them were held to have sinned in some special manner, and to be the immediate victims of divine punishment. This strong feeling was doubtless in great part due to the hideous deformity of some of these affections.

But the sanitary precautions taken to prevent the spreading of the malady show that besides this there was a second cause—namely, a belief that these diseases were highly infectious. The strict enactments of the Mosaic law in the case of lepers are well known. The leper was shut out from the congregation until such time as the priest should have pronounced him clean; and similar laws existed in other communities than the Jewish. For instance, we learn from Herodotus¹ that this was the case in Persia:

“Should any citizen have a leprosy or white eruption he is not allowed to enter into the city nor to have intercourse with other Persians; and they say that he suffers because he has sinned against the Sun. And should it be a foreigner who is attacked by one of these diseases, in many places they go so far as even to expel him from the country.”

What the real nature was of these two affections, which were thus dealt with, we have now no means exactly to determine. Probably they were vague terms, under which many totally distinct eruptions were confounded; for diagnosis was young and imperfect in the day of which Herodotus is speaking; and we can hardly doubt that, under this Persian law, many a poor sufferer must have been driven out whose presence in the city would in nowise have compromised the health of his fellows. It is, indeed, only very recently that we have learnt to distinguish a contagious disease of the skin from a non-contagious one with any trustworthy degree of certainty. Before the microscope came into use such a diagnosis was impossible; and even now, when the distinction has been established, be a practitioner of medicine as experienced as he may, cases will come before him in which he must have recourse to that instrument before he can arrive at a satisfactory conclusion. It is almost entirely to foreign dermatologists that we owe our present knowledge; and pre-eminent among the rest stand the well-known names of Bazin and Hardy from the French school, and of Hebra and Kuchenmeister from the German. Many English writers follow in their steps, and their various treatises do but embody the results arrived at by these foreigners, with more or less slight modifications and additions of their own. The general conclusion in which all these modern researches end may be briefly stated; it is this: that all contagious diseases of the skin—at least, all that exist in this part of the world—owe their contagious property to the presence either of animal or of vegetable parasites. There is one, and only one, exception to this universal law, and that is, in the case of certain syphilitic eruptions. But even as regards this one exception there is no absolute unanimity of opinion. Some authorities still refuse to admit their contagious nature.

Contagious skin-diseases, then, are with this one doubtful exception, diseases of parasitic origin: and the first question concerning them which suggests itself is, whence do these parasites come? In what way can we come to be infested by them? The simplest and most manifest method of contagion is the direct one. The parasite

animal, or vegetable, as the case may be, is transferred directly from the body of a person already infected to the body of a sound one. A man, for instance, in good health, sleeps with another suffering from the itch, and the *acarus* passes over in its nocturnal wanderings from one body to the other; or a child uses the brush of another child on whose head are some favus crusts; and in so doing transfers to its own scalp some of the *Achorion Schoenleinii*, which develops in its new site, and produces favus crusts similar to those from which it came. But it is by no means necessary that the transmission should be thus direct. The spores of the various fungi which live on the human body are of microscopic size, and excessively light. As they reach maturity, they are detached from the mother plant, and many of them, carried away by currents of air, float about for a definite period in the atmosphere. Most of these, we may hope, are eventually deposited in positions where they can do no harm; but those few which, by a fortunate chance, light on a suitable spot, say the skin or scalp of a child, and find there the necessary conditions for their development, fix on their new site, and, growing there, become in turn a source of contagion to others.

If any of our readers should doubt as to the power of the atmosphere to convey the fungus-spores from place to place in the way we have described, we would refer him to M. Pasteur's excellent article in the 'Comptes Rendus,' where he will find abundant proof of its possibility. M. Pasteur made use of an ingenious plan to collect the particles which float about in the air. In a long tube he placed a plug of gun-cotton; a continuous stream of air was made to pass through this tube, and the cotton acting as a mechanical filter, arrested the particles on their way. The plug was then removed, and dissolved in a mixture of ether and alcohol; as the cotton vanished, the contained particles dropped to the bottom of the fluid, and when this had evaporated, were examined with the microscope. The dust thus obtained was found to contain sundry inorganic substances. But besides these there were numerous small bodies, which could in no way be distinguished from the ova and spores of low organisms, and whose nature was most convincingly demonstrated by their developing into fungi and infusoria when placed in various solutions.¹

There is no doubt, then, that the germs of parasites may be transmitted not only immediately, but in this indirect manner. In either case, the source from which the germ is derived need not of any necessity be a human one. The same parasites which infest the skin of man are found also on the integuments of other animals; the itch-insect, for instance, is common enough on sheep. The *trichophyton*, to which ringworm and sundry other affections are due, has been often seen on horses and other animals. Bazin notices a case in which the fungus of *porrigo favosa* was traced back from a child to a mouse, through a cat, which had first eaten the diseased mouse, and then been petted by the child. And there is reason to suppose that even

¹ Our readers will remember that we made allusion to Pasteur's experiments regarding spontaneous generation in our January number, see p. 170.

the vegetable world may serve as a nidus for our enemies. At any rate, Gruby is said to have inoculated the bark of an oak-tree in full vegetation with the *Achorion Schoenleinii*, and to have seen a favus cup develope itself on the spot, identical with that which grows on the head of infants.¹

There are some authorities who maintain that, besides coming from these sources, the parasitic fungi may be generated spontaneously on the parts of the skin where they are found. They adduce as arguments in favour of this view the undoubted facts, that these fungi are found almost invariably only on persons of a certain constitution, or who have been weakened by disease or want of food, and also that when found, their growth may be modified or entirely arrested by internal remedies. This is not the place to discuss the general question of spontaneous generation. This theory, admitted by Aristotle, revived in our own country by Needham, and since his time bandied about with various fortune by numerous inquirers, has been most strongly contested by M. Pasteur. But without entering on this intricate question, we may say a few words on the insufficiency of the arguments just mentioned. It is true that, as a rule, but not as a universal one, these parasites are only found on persons of feeble health; and it is true also that their growth may be interfered with by internal remedies. But these facts only show what every one would expect *à priori*, that the parasitic germs require a suitable soil for their development. This is true not only of fungi but of all plants, and of all animals. Every organism, be it what it may, requires certain external conditions adapted to its wants. Place any seeds you please in a fitting soil and under proper conditions, and they will grow and flourish. Place them in an unfitting soil and they will perish. The skin of some persons, notably of enfeebled ones, affords a fitting soil for the fungi in question. When the germs light there they develope. The skin of others, for some unknown reasons, does *not* possess the requisite properties. The spores or germs which chance to fall there fall to no purpose.

So also with respect to the effects of drugs administered internally. Arsenic and other medicines have, we know, even when administered in health, a certain influence upon the skin. They alter in some way or other its nutrition. Whatever hindrance then they offer to the growth of a parasite, may be fairly attributed to the change which they have wrought in its nidus. You have made the soil an unsuitable one. It is as though you had poured some poisonous fluid into the ground on which a plant was growing. The difference, in fact, between the use of internal and of external remedies in these cases is simply this: the external remedies attack the fungus itself; the internal attack the soil, which is essential to its growth. If a drug can be found which does this effectually, it must be equally efficacious with one which attacks the fungus itself. The difficulty is to find such a substance. This inability of a parasite to grow on one skin while it flourishes on another, extends not only to the fungi but to our animal pests. In illustration of this we may quote an observation

¹ Anderson, p. 23 (quoted from Devergie).

cited by Dr. Fox (p. 18) : "M. Delafond has shown that in a healthy sheep it was possible to put a great number of acari on the skin without communicating the itch ; while, on the contrary, the development of the cutaneous affection was rapid if the animal had been weakened by a bad regimen."

Parasites, then, whether vegetable or animal, affect some skins in preference to others. This being so, the question at once arises, on what does this preference depend? This cannot, as yet, be answered with precision. Still there are certain general conditions which may be mentioned as indubitably favourable to their development.

In the first place, the skin of children affords a more suitable soil than does that of adults. No one who has had experience of children's hospitals will for a moment doubt this assertion. The vegetable parasites, though they often occur at a more mature age, are infinitely more abundant in youth.

Mr. Hutchinson has tried to explain this comparative immunity of grown-up persons in the case of common ringworm of the scalp. The fungus which causes this disease is found not only on the epidermis, but within the bulbs and shafts of the hairs. Mr. Hutchinson attributes the frequency of its occurrence in children to the greater softness of the cortex of their hair. As they grow older the cortex hardens, and presents a physical hindrance to the entrance of the fungus. But as Dr. Fox well remarks, this explanation is insufficient, and for this simple reason : the fungus does not make its way in through the hard cortex ; it grows down into the hair-follicle, reaches the papilla, and gets into the interior of the hair through its soft growing part ; and this part is equally soft in old and young.

Next to youth, among favourable conditions comes weakness, and especially the weakness of a scrofulous constitution. Sound and vigorous subjects *may* be attacked by parasites ; but they are attacked much less frequently than the sickly, and, moreover, the affection, when established, holds to them with inferior tenacity, and is more easily subdued. Such at least is the result of our own experience. In this respect there is a great similarity between external and internal parasites. The common threadworm is no difficult enemy to deal with in an otherwise healthy subject. But in a scrofulous child, let what drugs it may be given, as fast as they are expelled new ones take their place, and this with a pertinacity which often forms the despair of the medical attendant.

A third condition which greatly favours the development of parasites is dirtiness. Hebra lays great stress on this as a cause of favus, and Dr. Anderson holds it to be of all predisposers the most powerful. It is not only that the dirt furnishes a good soil for the parasite, but as a dirty skin is one that is left undisturbed, the fungus finds there the repose which experience shows is necessary, or almost so, for its growth. Hebra gives an example from every-day life, which admirably illustrates this point. He remarks, that if an inkbottle be left for some time undisturbed, there is soon to be seen on its surface a development of fungous matter, whereas, if the inkbottle be kept in con-

stant use, nothing of the kind occurs. It is this which in great part explains the immunity from parasitic eruptions enjoyed by the wealthier classes. They are cleanly in their habits, and the germs are no sooner deposited than they are brushed or washed away.

Youth, debility, dirtiness are then all conditions which favour parasitic development. Besides these there are some others, as, for instance, the existence of a non-specific eruption. The germ, when it lights on a skin already diseased, finds, as it were, the ground ploughed up and prepared for its reception, and the morbid secretions of the part supply it with the best pabulum. Cases of this kind have misled some dermatologists into the opinion, that the presence of a parasite is only an accidental phenomenon, and has no share in the production of skin disease. They see an eruption exist for a length of time in a simple state, and then some fungus makes its appearance. If they succeed in destroying the fungus they find that the eruption remains uncured, and they naturally infer that the existence or the absence of the cryptogam is of no importance. But in such a case they have been dealing not with a single malady, but with a combination of two, engrafted one on the other, and by destroying the parasite they have cured the second, while they leave the first and the non-specific one untouched. This predilection of parasites for diseased skins is well illustrated by an experiment of C. Bernard :

“When frogs have been kept long in captivity their health declines and ulcerations arise around the mouth and nose ; the nervous system being in this case considerably depressed, the animal is of course found to resist much longer the action of strychnia and similar poisons, while parasitical affections spread with fearful rapidity. Frogs are subject to the growth of parasitical fungi, which, after a certain lapse of time, occasion the animal's death. Now, if a healthy frog be placed in a jar containing others affected with the above-mentioned disease, the new comer sets contagion at defiance ; while if another frog affected with ulcerations in the vicinity of the natural orifices is introduced into the jar, the parasitical vegetation covers it at once.”¹

In Dr. Fox's opinion, it is by no means necessary that an eruption should already actually exist. It is sufficient that a tendency to non-specific eruptions should be present. “It would appear,” he says, “from all considerations, that the non-specific eruptive crisis is that which supplies the necessary and only fit soil for fungous growth ; the crisis, or *tendency to eruption*, because by no means need there be any actual manifestation present, in the form of eruption, which is the culmination of the peculiar blood state.” (p. 19.) It is by this hypothesis that Dr. Fox explains the frequency of these parasitic growths in the young and in the scrofulous ; such subjects being, as is well known, especially liable not only to parasitic, but to non-parasitic skin disease.

What has been said hitherto has reference to parasitic eruptions as a class. It remains to speak of them individually. Parasites, as already has been stated, are either animal or vegetable. The maladies

¹ Medical Times, Feb. 25th, 1860.

caused by these latter are much more numerous and much more difficult to overcome than those caused by the former; but as to the number of parasitic fungi themselves, there is great diversity of opinion. Dr. Anderson, following Hardy, reckons them as four: 1. The *Achorion Schoenleinii*, which is the fungus of favus; 2. The *Tricophyton*, to which three forms of eruption are due—namely, herpes circinatus, sycosis, and herpes tonsurans; 3. The *Microsporon Audouini*, which produces alopecia areata, or, as it is more usually called, tinea decalvans; 4. *Microsporon furfur*, to which is ascribed pityriasis versicolor. On the other hand, Hebra altogether denies the parasitic nature of sycosis, and attributes all the other above-mentioned eruptions to one and the same fungus. In this latter opinion Dr. Fox coincides. The arguments adduced in favour of the identity or non-identity of the fungi are of two kinds. One set are based on the frequency with which the various eruptions are found to co-exist on the same patient; the other on the microscopic characters of the spores and other constituents of the fungus growths. The instances are exceedingly numerous in which herpes circinatus and herpes tonsurans have been seen side by side on one skin. Sometimes a patch of the latter, occupying the edge of the hairy scalp, is seen to terminate in the skin below in an unmistakable patch of the former. So also not rarely an infant is found affected with herpes tonsurans, while the hands of the mother present rings of herpes circinatus. So also with sycosis and herpes circinatus. Their co-existence in one individual, or in members of the same family, has been noticed with sufficient frequency to establish a conviction in the minds of many dermatologists that they are virtually one and the same malady. We agree, therefore, with Dr. Anderson and Dr. Fox in placing these three eruptions under one head; but with respect to the *Achorion Schoenleinii* there is by no means an equal degree of certainty. It has, it is true, been seen side by side with the *Tricophyton*, and such cases are represented in the admirable plates which are now being reproduced by the Sydenham Society from those of Hebra; but the question is not whether the two *can* co-exist, but whether this co-existence is sufficiently frequent to convince us of their identity. This, in our opinion, has not yet been established. As to the second class of arguments—those, that is, which are based on the microscopic appearance of the spores and mycelium—we have little to say. These elements are excessively small, and the difficulties in the way of examining them carefully are confessedly great. Moreover, the element of mutability which, as Hooker says, pervades the whole vegetable kingdom, exists to the fullest extent in these humble and little specialized organisms. So that we agree with Dr. Fox in thinking that very little reliance is to be placed on minute differences of size and form as criteria for the separation of these cryptogamous plants into distinct species. After all, the question is one which concerns the botanist more than the medical man. Be the fungi one or many, it is the same thing to the practitioner. He can afford to look on the question with indifference, and for this simple reason—

the same drug which will destroy one parasitic fungus will equally destroy all others. The difficulty is not to find a drug which can do this—there are several equally efficacious—but to find means of bringing the drug and the parasite into intimate contact. When this is effected—be the fungus a *trichophyton*, an *achorion*, or a *microsporon*—its destruction is ensured, and with its destruction that of the eruption which it occasions.

In some cases this necessary contact of drug and parasite may be brought about with the greatest ease. In others it is a matter of considerable difficulty. When the cryptogam is confined to the superficial elements of the skin, it is sufficient to rub one of the many parasiticial ointments or lotions on the affected part, and in a few days the malady is at an end. Such is the case in that very common disease of childhood, herpes circinatus, and such also in another not uncommon ailment, pityriasis versicolor. These affect, as a rule, parts where there are very few hairs, and the fungus is consequently limited to the scaly cells of the epidermis. If a few of these be placed under the microscope, and a drop of potash solution added, the spores may be detected in abundance. But the task is a much harder one when the parasite fixes on some hairy part of the skin—the scalp or the chin. It is then no longer confined to the epidermis. It makes its way into the follicles, penetrates the bulb of each hair, and is found occupying the centre of its shaft. In this state of things the simple application of an ointment or of a lotion is seldom of much avail. All this treatment can do is to destroy such fungi as exist in the scales or coat outside of the hairs; but those which are within escape, and, as a rule, the disease only comes to an end when the hairs have perished. We do not say that simple external applications are never successful even in these cases. We have ourselves seen patches of herpes tonsurans yield to the application of a glass rod dipped in strong sulphuric acid, and Dr. Jenner speaks highly of the results obtained with sulphur ointment, to an ounce of which forty grains of ammonio-chloride of mercury have been added; but we say that no reliance can be placed on this method of proceeding. In the majority of cases it is unsuccessful, and to ensure a cure we must have recourse to stronger measures. The only safe method is to pull out the hairs from the diseased spot one by one, and at the same time to apply a suitable parasiticial ointment. This is the principle of the treatment which has long been pursued in Paris by certain empirics; but the plan which they adopted for the extraction of the hair was unnecessarily painful. Strips of some form of pitch-plaster were applied to the head, and after a time stripped off, the hairs, of course, being torn out at the same time. Besides the atrocious pain, there is another evil attending this plan. Many hairs escape, and are left to form new centres for the spread of the eruption. The method at present in use in the hospital of St. Louis is in every way preferable. It is more complete, and causes much less pain; in fact, if carefully conducted, it hardly causes any. The hairs are pulled out with forceps made for the purpose. Only one or two are removed at each tug, and if the

skin be very sensitive only a very small extent of surface is cleared at one sitting. The sensibility may also, according to Bazin, be diminished by applying oil of cade to the surface; but Hardy, as also Dr. Anderson, state that they have found very little profit in this application.¹ It is not enough to extract the hairs; at the same time a parasiticide lotion must be employed, and there are none better than those which contain corrosive sublimate. Hardy uses one containing a grain to the ounce. Dr. Anderson recommends one of double that strength. Each dermatologist has, in fact, his own pet application. The hairs, it should be mentioned, ought, for security, to be removed from a rather more extensive surface than is apparently diseased; and the external applications should be continued for some time after the depilation is complete, and the malady seemingly at an end. The extraction of the hairs is not an easy business. It is true that, the bulbs being diseased, the hairs hold slightly by their roots; but, then, they are excessively brittle, and frequently give way in the attempts to pull them out. Dr. Jenner even goes so far as to say that, in the case of herpes tonsurans, extraction is impossible; but in this he is certainly mistaken. We have ourselves seen the operation performed, and can vouch for its being feasible; but it must be admitted that it requires considerable dexterity and carefulness; so that it has been found advisable at St. Louis to entrust this function to men specially trained for the purpose. It is only in herpes tonsurans that any very great difficulty occurs in the process of depilation. In favus and in sycosis the hairs may be much more readily extracted, as they are by no means so brittle as in the former affection. Patients suffering from the remaining form of parasitic disease—*Alopecia areata*, or, as it is more generally styled, *Tinea decalvans*—rarely come into the medical man's hands until the hair has already disappeared from the diseased part, leaving round bare patches on the scalp. The hair may then be removed for a short distance round each patch, while some blistering fluid is applied to the spot itself. At the same time as these local remedies are in use the general health must not be neglected. The subjects of parasitic disease are, as before mentioned, often scrofulous or debilitated, and cod-liver oil and tonics are of great service in altering their constitutional condition and rendering the soil unsuitable for the development of fungi.

Before we leave the subject of parasitic fungi, we may mention that there is one skin affection to which neither Dr. Anderson nor Dr. Fox allude, which is in all probability also due to the presence of a fungus. This is the *Molluscum contagiosum* of Bateman; the *Acne varioliforme* of Bazin. Bateman had already pointed out the contagious nature of this disease, and had named it in accordance with his opinion; but pathologists had entertained great doubts of his accuracy, until M. Caillault again called their attention to the subject, and established by fresh observations the correctness of Bateman's designation.² Other observers have since then come to the same

¹ Hardy, p. 155; Anderson, p. 38.

² Archives de Médecine, 1851; Fourth Series, t. xxvii.

conclusion.¹ So that no doubt now exists that molluscum is really contagious. This fact is in itself an *à priori* reason for suspecting it to be due to parasitic growth; and what analogy would lead us to expect has been confirmed by microscopical research. M. Hardy has discovered the spores of a cryptogamous plant in the sebaceous contents of the shining semi-lucid tumours which characterize this affection.

We turn now from the vegetable to the animal parasites. Of these there are some half-dozen that prey on the human skin. There are the common flea and bug, each of which by its bite produces a characteristic but transitory eruption. Then there is the little red spider, or harvest-bug, which also produces a slight skin affection. Fourthly, there is the *Acarus folliculorum*, a curious little animal which infests the sebaceous glands, and is especially common in persons who suffer from acne punctata. Not that the acne is to be attributed to the acarus. In this case the parasite is blameless, and the proof is, that acne frequently occurs without there being any parasite present; and on the other hand, that the parasite is often to be found in glands which are perfectly healthy. But besides these which we have enumerated, there are two others which are more likely to require medical attention—the louse and the itch-insect, or, as it should rather be styled, the itch-spider, inasmuch as it possesses eight and not six legs. Of the former of these there are three varieties found on man—the *pediculus capitis*, *pediculus corporis*, and *pediculus pubis*, each variety taking its name from its special locality. It is, as Dr. Anderson remarks:

“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. 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.”

Pediculi, of whichever kind, may exist on the body without causing any eruption whatsoever; but when they are present in large numbers they usually, by their irritation, give rise either to an eczema or a prurigo. It would be an error, however, to ascribe to pediculi every case of eczema in which they are found. They are as often the consequence as the cause of this and similar eruptions. The moist and diseased surface seems to offer some special attraction to them, and in the morbid secretions they find the food and other conditions most favourable to their rapid multiplication. For this reason it is that they are so constantly found to complicate favus and the impetigo of children's heads. It is, moreover, in these same cases, where they are engrafted on a previous eruption, that they are most difficult to deal with. The matted hair and the glutinous crusts protect them against the action of external remedies, and at the same time furnish a secure lodging-place for the ova. Under such circumstances the hair must be cut short, the crusts removed with poultices, and staphysagria applied either in powder or mixed with lard. By these means,

¹ Hardy, *Malad. de la Peau*, 2nd Part, p. 98.

and by a sedulous attention to cleanliness, it is seldom that success is not obtained, be the pediculi as numerous as they may.

There remains for our consideration the *Acarus scabiei*. The history of this creature is a curious one. So long back as in the days of Averroës, the Arabian, the itch was ascribed to the presence of an animalcule. Later writers repeated the statement, without, however, pretending, so far as we are aware, to have themselves seen the parasite which they described. Linnæus probably had not seen it, or he would not have described it as identical with the mite found in flour. He had noticed that the itch frequently attacks the buttocks of young children, and he attributed this to the application of flour to those parts by nurses. The real explanation, no doubt, is, that the hands of the nurse are, in carrying the child, in direct contact with its buttocks; and the hands are, as every one knows, the most frequent seat of the disease in adults. At the beginning of this century, medical men seem, as a rule, to have come to regard the itch-insect as a myth, when in 1812 M. Galés, who had been apothecary at St. Louis, demonstrated its existence in the presence of numerous medical men and students. The most distinguished entomologists and savans examined the specimens, and acquiesced. The treatise published by M. Galés had the honour of being "couronné" by the Institut; and the question of the existence of the itch-insect seemed solved for ever. But after seventeen years had elapsed, M. Raspail came forward and accused Galés of imposture. He showed that the insect which Galés had shown and pictured was nothing else than a cheese-mite! Galés had concealed this under his nail; then opened a pustule or vesicle with a lancet, and producing the animalcule, professed to have removed it from the patient. It was not till 1834 that the *Acarus scabiei* was established as a real existing animal. It was discovered by Renucci, in Corsica; and now that its position has been once clearly pointed out, is not very difficult to find. Galés, the impostor, had pretended to find it in the vesicles or pustules. This is in itself a sufficient proof of his falsehood. The acarus is not lodged in the vesicle or pustule, but at the end of a little furrow which it hollows out under the epidermis. The vesicle or papule, as the case may be, is due to the irritation caused by this operation. The canals or furrows are usually of a serpentine form, and can be most readily detected either on the hands or, in the male, on the penis. The search for them will be made easier by first carefully cleaning the skin. It is only when the cuniculus is found that we can be quite certain that the case is one of scabies; and it must be confessed that this cannot always be done, especially when the disease is only of short standing. Still, in such cases, the seat of the eruption and other attendant circumstances usually afford sufficient data for a practical judgment. Should any doubt remain, the case should be treated as one of scabies, and the effect of remedies, as Hippocrates said, will show the nature of the disease.

It would appear that it is only the female acarus that is lodged in a cuniculus or furrow. The male roves at large on the external surface. His spouse, so soon as she is impregnated, seeks out a suitable spot—

one, that is, where the epidermis is soft and delicate—and burrowing in, spends the rest of her days imbedded out of sight; for once in her “sillon” or “cuniculus,” and egress is impossible. The long, stiff hairs which beset her posterior extremity effectually prevent all retrograde motion. In this retreat, then, she lives and lays her eggs, penetrating a little deeper as each ovum is deposited. These are in time hatched, and the larval acari make their escape from the furrow by its open end, and become the companions of their sires upon the free surface of the skin. It is doubtless by the passage of these larvæ from one person to another that the disease is transmitted. The mature female, as we have seen, is safely lodged under the epidermis, and cannot possibly make her way from one body to another. The adult male might pass over, but clearly by himself would be of little importance. It is to the migration of the young acari, or of the impregnated female before she has made her burrow, that the contagion is due. Luckily for doctors, this migration requires more than a mere momentary contact of a healthy with a diseased subject, otherwise each time they examined a patient they would be liable to infection. But speaking generally, scabies is only caught when the contact has been much more prolonged than this. In nineteen out of twenty cases, it is caught by sleeping with a person already affected, or by wearing his clothes; and this it is which, according to Hardy, accounts for the much greater frequency of this disease in winter than in summer.¹ In cold weather the labouring classes herd together, and sleep several in one bed; whereas in summer they isolate themselves, as far as their means will allow. For eighty cases which present themselves each winter morning, on an average, at St. Louis, only some ten are seen on a summer day. Moreover, it is those parts which are most exposed to prolonged or intimate contact which are usually first affected. We have before mentioned that in infants and young children the buttocks are, as a rule, earliest attacked. Doubtless this is due to the contact of the nurse’s hand; and according to Hardy, the disease in adult men commences most frequently on the skin of the penis, and is thence transmitted by scratching to the fingers.

The treatment of scabies is very simple. The method most ordinarily used in this country is merely to apply sulphur ointment to the skin; and in time this plan, if used with perseverance, ordinarily succeeds; but it requires time, for the female, buried in her furrow, is out of reach of the ointment. Any plan which would first open her burrow, and so expose her to the action of external remedies, would clearly be much more efficacious. This is done at St. Louis, and the old tedious process has now been reduced to the short space of one hour and a half. Both from what we have seen in the French Hospital and from our own practice, we can vouch that this short time is sufficient for the cure of an ordinary case of scabies. During the first half-hour, the patient is rubbed well all over his body with good black soap. The second half-hour is spent in a warm bath. This, with the previous soaping, removes much of the scaly epidermis, and lays open the cuni-

¹ Hardy, 2nd Part, p. 197.

culi. During the third half-hour the whole body is rubbed over with sulphur-ointment, to which subcarbonate of potash has been added in the proportion of half a drachm to the ounce. The patient must not wash the ointment off till the next morning, by which time he will be effectually cured. Of course, if he puts on the same garments he wore before, he may again be infected. To prevent this, the clothes should be exposed to sulphur vapour, or placed in air or water heated to 150° Fah. By these means both acari and ova will be destroyed.

In these brief remarks on the parasites which infest the human skin, we have purposely avoided all discussion of the anatomical lesions to which they give rise; these and the parasites themselves will be found fully described in the books which head this article. Of these books there are only two which will be found of much service by the medical man or the student: these are the treatises of Dr. Anderson and of Dr. Fox. Dr. Anderson's book in especial is a clear and well-written statement of all that has at present been made out on the subject; and the student will find there the views of Bazin and Hardy put before him in his own language. In Dr. Fox's treatise he will also find an account of the entophytes, or parasites which are found on the mucous surface. Of Dr. Ross's short treatise, a very small part, notwithstanding its title, has reference to parasitic disease. The greater part is occupied by an appendix on the constitutional relations of diseases of the skin, and by a certain number of cases related in a dramatic form. For instance—

Dr. R. How long have you had this?

Mr. D. I have had it occasionally before this, but never so bad.

Dr. R. How is your health?

Mr. D. I am all out of sorts; I have lost my appetite, &c. &c.

Mr. Hunt's 'Guide to the Treatment of Diseases of the Skin' is addressed rather to the unprofessional public than to the medical world; at least so we judge from the general style of the work, and from a notice begging patients not to take arsenical preparations without medical advice. As regards parasitic diseases, Mr. Hunt's views are by no means in accordance with those we have brought forward. Mr. Hunt is a follower in his classification of Willan, and thinks scabies more nearly allied to smallpox than to scallhead. He believes that the presence of a parasite, animal or vegetable, is a pure accident, and that no eruption was ever cured by destroying the parasite (p. 214). We cannot say that the case of favus, which he brings forward, convinces us. Mr. Hunt professes, in this instance, to have destroyed the parasite without curing the disease. How was its destruction effected? Mr. Hunt tells us that it was destroyed *easily*, "by applying oil of linseed, which soon detached the crusts; but the health remaining impaired, the vegetation grew again most rapidly." We should have been much surprised if it had not. The oil which removed the crusts had no more power to destroy the fungus in the hair-follicles and bulbs than the same quantity of water. Mr. Hunt does not even believe that scabies is due to the presence of an acarus, but ascribes it simply to dirtiness. Some of the arguments by which Mr. Hunt sup-

ports this opinion are so curious as to deserve notice. Mr. Hunt believes that the *acarus* is *not* the cause of scabies, because one of the pupils at St. Louis failed, in Mr. Hunt's opinion, to prove that it is. This pupil, M. Gras, among other experiments, made the following:—He placed on his skin seven living *acari*; after a time their introduction was followed "by some vesicular appearances."¹ One would have thought this was evidence, so far as it went, that *acari* can cause vesicular eruptions. But not so Mr. Hunt; and for this reason: "but the *acari* were then poisoned, instead of having the chance given them to quit their quarters for a new subject. The other experiments were equally inconclusive"!!

In bringing this article to a close, we think it due to Mr. Erasmus Wilson to state that it was written before his communication, published in our last number, had reached us. Mr. Wilson is not a supporter of the views we have set before our readers. He admits that this modern theory is a captivating one, and that it is not only popular in France and Germany, but gradually making way in England also; but he sees no valid reason for abandoning the conclusions at which he arrived some twenty years or more ago. The pathological forms which are now by all other writers regarded as the spores and filaments of cryptogamous plants, have, according to Mr. Wilson, no right to this vegetable character, but are nothing more than altered epidermis cells:

"Favous matter and the mucedinales of the phytodermata are organic matter arrested in development at the lowest degree of life, the function of reproduction; the sporules are growing organic substance, aborted epidermic granules; the filamentary portion fully-formed organic substance, beyond which there is no further growth, the highest and perfected form of development."²

We have ourselves not the slightest doubt of the fungoid character of the forms and elements in question. We would refer, however, such of our readers as may wish to see the opposite side advocated, to Mr. Wilson's communication, where they will find his theory stated at length.

REVIEW VII.

A Treatise on Hygiene, with Special Reference to Military Service.
By WILLIAM A. HAMMOND, M.D., Surgeon-General United States Army, &c.—Philadelphia, 1863. pp. 604.

IN a preceding part of this number of our Review we have noticed Dr. Hammond's 'Physiological Memoirs' with the praise due to them. We little thought at the time that there would so soon be laid before us a work by the same author, bearing the title given above. Whether we consider the important office Dr. Hammond filled, or the peculiarity of the period when he composed it—not a time of peace and leisure, but, as we all too well know, of civil war in all its intensity—

¹ Hunt, p. 137.

² P. 204 of our last number.