

A practical treatise upon eczema : including its lichenous, impetiginous and pruriginous varieties / by T. M'Call Anderson.

Contributors

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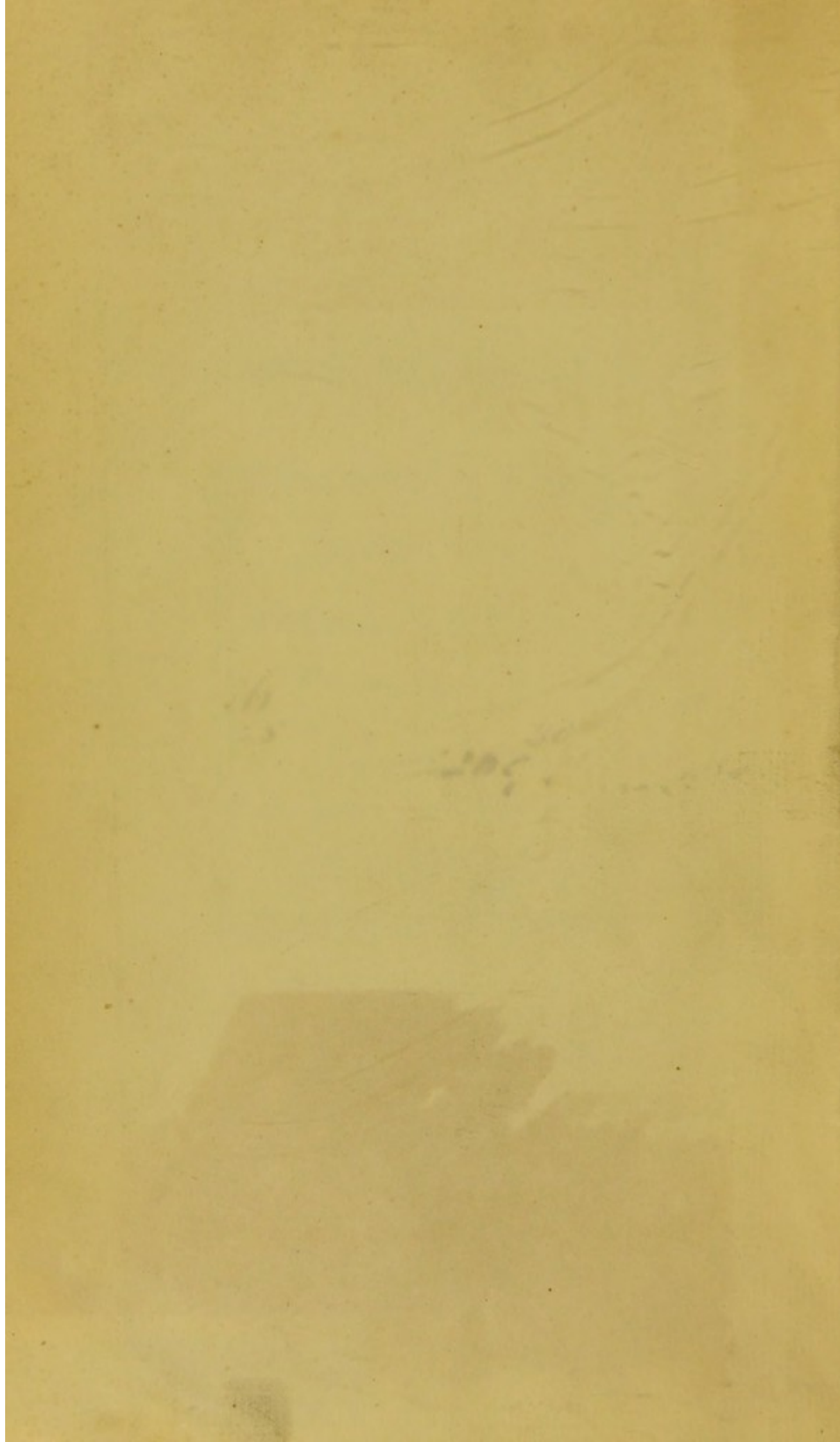
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A
PRACTICAL TREATISE
UPON
ECZEMA,

INCLUDING ITS
LICHENOUS, IMPETIGINOUS, AND PRURIGINOUS
VARIETIES.

BY
T. M'CALL ANDERSON, M.D.,

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PHYSICIAN TO THE DEAF AND DUMB INSTITUTION, GLASGOW,
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TO

H E B R A,

PROFESSOR OF DERMATOLOGY AT VIENNA,

WHOSE UNWEARIED EFFORTS TOWARDS THE ELUCIDATION

OF THE TRUE NATURE AND

RATIONAL TREATMENT OF DISEASES OF THE SKIN,

HAVE WON FOR HIM THE ESTEEM AND GRATITUDE OF

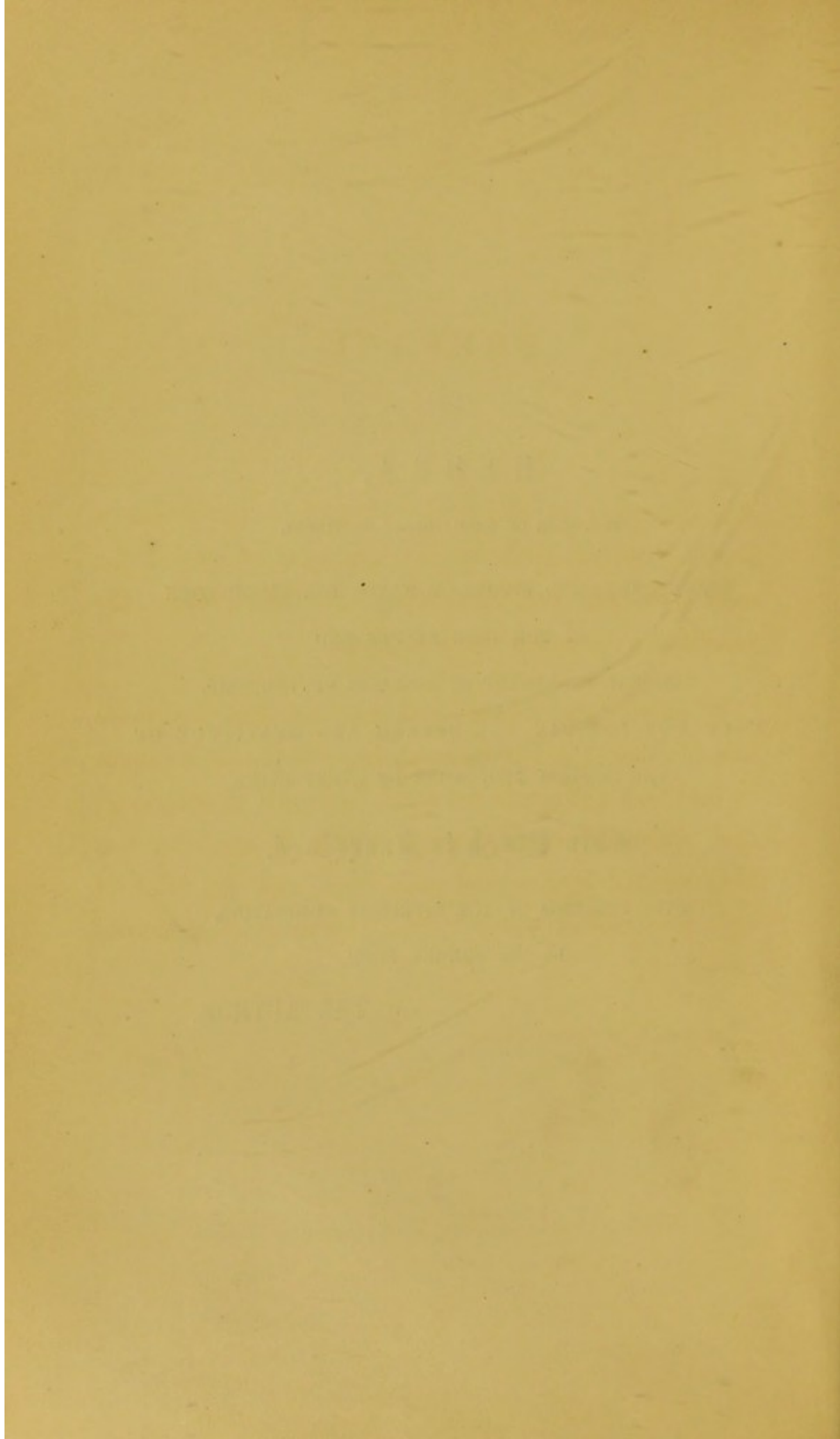
THE MEDICAL PROFESSION OF EVERY CLIME,

This Work is Inscribed,

WITH FEELINGS OF THE LIVELIEST ADMIRATION,

BY HIS FORMER PUPIL,

THE AUTHOR.



P R E F A C E.

THE intention of this little volume is to furnish a simple practical guide to the treatment of one of the most common and distressing affections which the practitioner is called upon to treat.

Whatever its defects—and no one can be more sensible than I am of its many imperfections—it cannot be said that I arrogate too much to myself in observing, that almost every statement which it contains, has been verified by personal experience, and the value of each prescription tested by the treatment of numerous cases.

GLASGOW, 6 ST. GEORGE'S ROAD,
September, 1863.

THE HISTORY

OF THE
CITY OF
NEW-YORK
FROM
THE
FIRST
SETTLEMENT
TO
THE
PRESENT
TIME

BY
JOHN
BUTLER
OF
THE
CITY OF
NEW-YORK
IN
1704
AND
1705
BY
JOHN
BUTLER
OF
THE
CITY OF
NEW-YORK
IN
1704
AND
1705

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BY THE SAME AUTHOR,
THE PARASITIC AFFECTIONS OF THE SKIN.

"We hope to see Mr. Anderson's next work devoted to all the forms of cutaneous diseases, which could be no difficulty with him, judging from this interesting monograph on the parasitic affections."—*Dublin Medical Press*.

"A very useful, practical monogram. . . . We think all readers interested in its subject will be pleased."—*The American Journal of the Medical Sciences*.

"His descriptions of disease are clear; his illustrations, some of them original, are very good; his treatment judicious, founded, as we have said, on observation abroad and practice at home; and on the whole we can heartily recommend this work."—*British Medical Journal*.

"Gratifying to the reader in every respect. . . . Scientific earnestness, and clearness and simplicity of description are qualities which have doubtless already won, and will yet win, for it many friends."—*Vienna Medical Journal*.

"The production of a practical physician, who, having detected a want in the literature of his profession in this country, and consequently in the presumable knowledge of his countrymen, has recorded for their benefit his own judgments, which have been formed in a wide field, with great opportunities for observation, and great good sense in taking advantage of them."—*Glasgow Medical Journal*.

PRACTICAL TREATISE

UPON

ECZEMA.

CHAPTER I.

It is necessary to enter at some length upon the consideration of eczema, seeing that, in one or other of its protean forms, it is one of those diseases which are most frequently encountered in practice. It is, at all events, by far the most frequent of the diseases of the skin, of which ample evidence is afforded by the statistics of Devergie. For, of 1800 cases of skin disease, he noted 600 of eczema, or one-third of the whole number. And, as he gives a considerably more restricted application to the term eczema than it is my intention to do, this proportion may be within the mark.

Another reason for directing particular attention to this disease is, that the views I am about to propound—though shared in, in many respects, by my colleague, Dr. Buchanan, and several continental dermatologists, especially by Hebra, of Vienna, who has certainly the credit of being the first to put us upon this track—

differ, in many important respects, from those which are adopted and taught by the majority of the Profession in this country.

It has always appeared to me that much confusion exists in the descriptions given of eczema in most standard works on dermatology, so that I trust my remarks will be compared, not so much with the views commonly received with regard to it, as with what is observed in nature; for I am desirous that my readers should follow me without preconceived opinions.

The restricted meaning which is commonly given to the word eczema has arisen, no doubt, from the adoption of the classification of Willan and Bateman, in accordance with which the elementary lesion of eczema is, of necessity, a vesicle. Defective as any classification of skin diseases must be, there can be little doubt that the anatomical classification is the most objectionable of all; for in this way are many dissimilar diseases brought together under one group, and violence is done to the symptomatology of many of them, owing to the necessity of placing them under the head of one of the elementary lesions. Thus, scabies is ranked with ecthyma and small-pox—diseases which have no connection with one another whatever; and the first of these (scabies), though it often shows itself in the pustular form, is still more commonly met with as a vesicular or papular eruption, or as a mixture of all three.

There can be no doubt in my mind, that the best classification of skin diseases is one founded, not upon

the elementary lesion, but upon the nature of the affection. This is the basis of the classification of Hardy, and of that which is adopted by my colleague and myself. (a)

Now, to return to the subject of eczema, I feel pretty confident that those who study this disease carefully at the bedside, without bias, will be forced to the following conclusions:—

1. That the elementary lesion of eczema is not of necessity a vesicle.

2. That it may be an erythematous state of the skin, a vesicle, a pustule, a papule, or a fissure.

3. That impetigo, lichen, and prurigo are merely varieties of eczema, in which the elementary lesions are respectively pustules and papules.

4. That cases of eczema are often met with in which an erythematous state of the skin, vesicles, pustules, papules, and fissures are met with in a combined form.

To this subject I shall direct more particular attention after having brought under notice the less variable symptoms of eczema.

Symptoms.—When an eczematous eruption is at its height, there are four symptoms which, according to my experience, are almost always present in a greater or less degree. These are—

1. Infiltration of the skin.
2. Exudation on the surface of the skin.
3. Formation of crusts.
4. Itching.

1. *Infiltration of the Skin*.—The infiltration is due to the transudation of the serous portions of the blood through the walls of the vessels into the meshes of the skin. It is upon the infiltration that the exudation on the surface of the skin, the itching, and the formation of crusts to a great extent depend. Remove the infiltration, and the exudation and formation of crusts usually cease, and the itching is moderated, though it may not cease entirely. The infiltration is detected by pinching up a fold of the affected skin between the finger and thumb, and comparing it with a similar fold of a healthy part. The infiltrated fold is, *cæteris paribus*, much thicker than the healthy one, and, the greater the thickness of the fold, the greater the infiltration, and the more inveterate the affection of the part. It has also a doughy feel, especially if the infiltration be at all great, as compared with the elastic feel of healthy tissue. Again, on pressing an inflamed and infiltrated patch with the finger, the redness disappears for the moment, being replaced, however, by a yellowish colour; whereas, on pressing a patch of simple erythema, in which, of course, scarcely any infiltration exists, the redness is replaced for the time by a healthy white colour. There is always more or less swelling of the affected part, which is principally due to the infiltration, but the swelling is not always in proportion to the amount of the infiltration, being more marked in those situations where there is much loose cellular tissue—beneath the eyes, for example.

2. *Exudation on the Surface of the Skin.*—The exudation may take place constantly or principally when the circulation is excited, or the part exposed to friction, as when the patient scratches it. The observer must not therefore be led astray by the absence of exudation at the time the part is under inspection, but must always ask the patient if the eruption is ever moist, or, to use expressions in more general use in this part of the country, and especially amongst the poorer classes, if it ever “waters” or “leets.” In a few cases of eczema, however, and particularly of the lichenous forms, there is little, if any exudation, and consequently there are no crusts throughout the whole course of the disease. The exudation is often of a purulent nature, owing to the rupture of pustules, but more frequently serous, coming from the bottom of fissures, from the surface of excoriations, or from the rupture of vesicles. It is occasionally mixed with blood coming from the bottom of fissures, or from lacerations of the skin produced by the nails of the sufferer. It has the property of staining the under-clothing with which it comes in contact, and of stiffening it as starch does. It may be produced artificially by painting over the eczematous surface a solution of potash (say gr. x. of potassa fusa to the ℥j. of water), which, acting as an irritant, not only produces a copious exudation on the surface of the skin, but likewise stimulates the capillary circulation of the part, and thereby induces absorption

of the fluid infiltrated into the tissues. This must therefore be borne in mind in the treatment of infiltrated eczematous patches, and will be again referred to.

3. *Formation of Crusts.*—The crusts, being composed of concrete exudation and exfoliated epidermis, mingled frequently with sebaceous matter (especially when the eruption is on the head), and with particles of dirt, are more or less present on the surface of every exuding eczematous patch—their size and appearance depending upon the length of time during which they have existed, the quantity and quality of the exudation, and the habits of the patient as regards cleanliness. If the patient be very cleanly, and the exuded matter washed off repeatedly, or removed by means of daily poultices, or if the exudation be very slight, the crusts seen on the affected part at any given time may be very thin, and more like scales than crusts, or they may be wanting altogether. If the opposite hold, and the patient be negligent, the crusts may become very thick and adherent, owing to continual additions to their under surfaces from successive exudations. Not unfrequently cases are met with in which, though the eczema is quite cured, the crusts remain, owing to the negligence of the patient. This, for instance, is a common case:—A poor woman brings for advice her child who has had an eruption on the head for years, and nothing done for it. Lice probably wallow about in all directions, and their nits

(eggs) adhere to the hair in profusion; while, scattered over the head, large yellow or brown, thick, adherent, dry, and brittle scabs are detected. The hair is cut short, the nits removed by combing and the use of spirit, the lice killed with staphisagria ointment, and the crusts removed by means of poultices, when healthy skin is found beneath. Crusts of this kind, which owe their existence to a past disease, are much drier and more brittle than recent ones, and, by a little experience, such cases can be detected before the removal of the crusts. The size of the crusts is therefore no criterion of the severity of the disease, unless the patient be under one's own eye, and one sees the rapidity with which new crusts form after the removal of the old ones.

Crusts due to the desiccation of purulent matter are usually thicker and rougher than those following the exudation of serous fluid. Those forming on hairy parts are, *cæteris paribus*, more apt to assume large dimensions than in situations not provided with hair, as they become glued to the hair, adhere very firmly, frequently cause much pain in the attempt to remove them, and are often concealed in great part by the hair itself. Their colour varies much; if the exudation be serous, the crusts have a greyish or brownish appearance; if purulent, as in the pustular variety of eczema, yellow; if blood be mixed with either of these, any shade of brown or black. These are the colours when the crusts are recently formed, but

when of old standing they are altered, from mixture with particles of dust and other impurities.

4. *Itching*.—The itching may be of any degree, and constant or intermittent. It is always aggravated by touching the inflamed part, the slightest touch even sometimes giving rise to an irresistible desire to scratch. It gets troublesome when the circulation in the cutaneous capillaries is excited, as by the use of stimulating food or drink, or on getting warm in bed, thus preventing sleep. It is curious how patients seem to rejoice in the application of severe irritants, which relieve the itching at the expense of much pain. They seem to derive positive pleasure from scratching the part, and often continue to do so till blood flows freely, and the itchy sensation is replaced by pain from the laceration of the skin by the nails. Sometimes, along with the itchy sensation, or, instead of it, formication is complained of; that is, a feeling as if numbers of insects were crawling over the skin. This sensation is very distressing to the patient in severe cases; and I have been consulted by those whose lives were thus rendered burdensome to them, and who wandered about from town to town and from country to country in search of relief. Often, independently of the scratching, pain predominates over the sensation of itching, owing to the presence of deep fissures; and sometimes, instead of pain or itching, burning heat is complained of, especially when the patch is acutely inflamed, and when there is a copious

eruption of newly-formed vesicles or pustules. This is another point worthy of recollection, as indicating the employment of emollient applications in the first instance. Scratching always aggravates the disease, and tends to bring out fresh crops of eruption. Patients know this very well, but cannot refrain from indulging in a practice which, for the moment, gives relief. Often, in mild cases, where there is not much infiltration, the disease is kept up by the scratching alone, and, in such cases, by allaying the itching and the desire to scratch by local sedatives alone, I have repeatedly effected a cure, so great a stimulus does the scratching give to the disease.

(a) For a very interesting paper on the "Classification of Diseases of the Skin," from the pen of my colleague, Dr. A. B. Buchanan, see *Edinburgh Medical Journal*, January, 1863.

CHAPTER II.

THE *elementary lesions* encountered in cases of eczema, may now be studied at greater length. These vary much, as I previously observed; hence I have ranked them second in importance to the infiltration, exudation, itching, and formation of crusts—four symptoms which are almost always present to a certain extent in a fully-developed eczema, or in some part of its course. By so doing, the observer is prevented from fixing his attention too much upon the former, and being thus led away from the diagnosis of the case. The elementary lesion is of great importance, however. This may be—

1. An erythematous state of skin.
2. A vesicle.
3. A pustule.
4. A papule.
5. A fissure; or a mixture of several or all of these lesions.

1. *The Elementary Lesion, an Erythematous State of Skin.*—In this case the disease commences as a simple erythema, which is shortly accompanied by exfoliation of the epidermis; but there is as yet no infiltration of the skin, neither is there any exudation on its surface. The diseased process not being arrested at this stage, infiltration of the affected part gradually

supervenes, and the disease is now on the confines of a typical eczema. What have we now? We have patches of reddened, scaly, and infiltrated skin, described under the name of *eczema squamosum* by Hebra, who points out very correctly that this is identical with what is described in dermatological works as *pityriasis rubra*—a term which has been appropriated by Devergie, and adopted by Hebra himself, for the designation of a very different affection. (a) If the inflammation advances still further, serous exudation on the surface of the skin is superadded, which concretes into crusts, and we have now to deal with a typical exuding, infiltrated, and itchy eczematous eruption (*eczema erythematodes*—so called from the elementary lesion being an erythema), covered more or less with crusts, and without, it may be, the vestige of a vesicle. We may thus regard *eczema squamosum* as the connecting link between a typical *eczema erythematodes* and a simple erythema. The eruption is now at its height; but, by and by, the infiltration begins to yield, and the disease progresses towards a cure. The exudation diminishes, and gradually ceases, the crusts fall off, the infiltration disappears, and a simple erythema only is left, as at the commencement of the process, with this exception, that the inflammation is not usually so marked. This, likewise, in a varying period of time vanishes, the erythema giving way to healthy skin, or to skin coloured more or less with pigment, which in its turn gradually disappears. The following case illustrates in some

measure what has just been stated:—"Wm. B., aged 42, weaver, was admitted at the Dispensary for Skin Diseases (Glasgow), March 21, 1861, owing to the outbreak of an eczematous eruption, which had commenced two or three months previously near the left ankle, from which it had gradually extended till the above date, when it covered almost the whole of both legs and inner aspect of thighs, the knees, however, being unaffected. The elementary lesion was an erythematous state of skin, the infiltration of skin considerable, the exudation of serous fluid slight, and the itching excessive at times. The inguinal glands were enlarged from the irritation, and several furunculi were scattered here and there. On each arm, occupying the lower third of upper arms and two-thirds of fore-arms, a bright red, slightly elevated, rough and scaly patch of erythema was detected, which was very itchy, but without any infiltration of the skin to speak of, or exudation on its surface. It is not necessary to follow all the reports of this case; but it is interesting, as showing the identity in nature of the erythematous eruption upon the arms and the eczematous eruption on the legs, to know, that at one period the erythema of the arms changed its characters, and became converted into an exuding and infiltrated eczema, and that the same treatment, consisting principally of applications of a solution of black soap and tar, and the cold douche, which effected a cure of the typical eczema of those parts, removed also the patches of erythema of others."

Another typical case of eczema erythematodes, showing the connection between that affection and erythema, will be mentioned when I come to the treatment. In many instances, as I shall afterwards point out, while the disease commences with an erythema, the above evolution is interfered with by the development, upon the erythematous ground, of one or more of the other elementary lesions enumerated at the commencement, as, for example, by a copious eruption of vesicles; but more of this hereafter. An eczematous eruption sometimes assumes an appearance which may be mentioned here, although the lesion at the commencement of the process is by no means of necessity an erythematous state of skin. In this variety there is usually not a vestige of either a vesicle, a pustule, or a papule (I speak now of the fully-developed eruption), but the skin is red, perfectly smooth on the surface, and brilliantly polished and shining in appearance, while the meshes of the deeper structures of the skin are loaded with infiltration. Every now and then this unhealthy cuticle exfoliates, but leaves behind it a new layer as unhealthy as the one which preceded it. I have noticed this form of eczema especially often upon the legs, and not unfrequently upon the scrotum and ears. When the patient scratches the part, which is usually very itchy, excoriations occur and serum exudes, and often blood; and if the scratching is much indulged in, the eruption of course loses the appearance above described, and becomes covered with excoriations and crusts.

2. *The Elementary Lesion a Vesicle.*—As before observed, a vesicle is held, by the followers of Willan, to be the invariable elementary lesion in cases of eczema—an idea which I have no hesitation in saying has been the foundation of more errors in diagnosis than any other in the whole range of dermatology. For, while a vesicle is frequently, it is by no means always, nor even in the majority of cases, the elementary lesion. The vesicular form of eczema usually commences with an erythematous eruption, and upon this ground vesicles are developed, many of which may assume a pyogenic action, and are converted into pustules, in which case we have an assemblage of three elementary lesions, thus giving the lie to the anatomical classification. The vesicles are developed at the orifices of the cutaneous follicles, are small, closely set together, usually rupture early, and the serosity concretes into crusts. It is a very common occurrence for many of them to run together, separating the corneous from the secretory layer of the epidermis over a considerable extent. In these cases, the corneous layer usually gives way quickly, so that the exudation has not had time to be secreted to such an extent as to raise the cuticle much higher than the height of an ordinary vesicle; but, where the corneous layer is very thick, as on the soles of the feet and palms of the hands, it does not give way readily; the secretion of serum goes on increasing, and large bullæ may be formed—a circumstance which requires to be borne in

mind, else the observer may fall into an error of diagnosis which I shall refer to afterwards. Although the vesicles do not usually remain long intact, the vesicular stage may be kept up by the formation of successive crops of vesicles; but, even in this case, they usually disappear after infiltration of the skin becomes pronounced and the disease thoroughly established. When the vesicular stage is gone, and the disease is at its height, it will be well to study carefully the appearance of the affected part in the cases which come under observation. The infiltrated patches are red and inflamed, but the redness is not uniform, being studded with innumerable points of a deeper red, thus giving to the parts a remarkable punctated appearance—an appearance which, when well marked, serves to distinguish the eczematous eruption from all other diseases of the skin, and which Devergie claims to have been the first to describe. These points correspond to the orifices of the glands, like the vesicles which preceded them; they are owing to the congestion of the skin being more pronounced at the glandular orifices than elsewhere, and to the occurrence of minute excoriations—the result of rupture of the vesicles. It is principally from these that the serous fluid exudes, often in great abundance, and which afterwards concretes into scabs. This stage of eczema corresponds to the *eczema rubrum* of some authors, the *eczema madidans* of others. Devergie points out that the punctated appearance, when not well marked, may be brought out more characteristically by rubbing

firmly into the affected part a solution of carbonate of potash in water.

3. *The Elementary Lesion a Pustule.*—This is the so-called impetigo of authors (a convenient word to retain, as expressive of the pustular form of eczema), which should on no account be ranked as a separate disease. The pustules, like the vesicles, usually form upon an erythematous ground; but, as I have before observed, their formation is sometimes secondary, vesicles being at first developed, the contents of which gradually change from serum into pus. The pustules are often somewhat larger than the vesicles, and remain longer intact; otherwise, the pustular form of eczema runs exactly the same course as the vesicular; and, when the pustular stage is gone, and the crusts removed, we observe the same punctated, exuding, itchy, and infiltrated patches, the description of which it is unnecessary to repeat. The pustular variety of eczema occurs oftenest on hairy parts at the orifices of the hair-follicles, as, for instance on the head and chin, constituting cases of the so-called impetigo capitis and impetigo menti. Physicians in this country, following in the footsteps of Willan, have not yet been induced to regard impetigo as a mere variety of eczema—a point which is generally conceded by both French and German dermatologists; but they are, as a rule, far too good observers not to have noticed a mixture of vesicles and pustules on many patches of eczema, and a frequent transformation

of vesicles into pustules; hence the origin and meaning of the term eczema impetiginodes.

4. *The Elementary Lesion a Papule.*—This form of eczema is described as a separate disease by most authors under the name of lichen—a name which it is well to retain, as designating an eczema the elementary lesion of which is a papule. But a careful study of this affection has led me to the opinion, that it would be doing violence to the natural affinities of lichen to look upon it in any other light than as a mere variety of eczema. The eruption commences in the form of small, red papulæ, which may be isolated one from the other, and scattered here and there (*lichen disseminatus*); or confluent, forming elevated, rough, and furrowed patches of various shapes and sizes, in which, owing to the coalescence of the papules, the elementary lesion is sometimes difficult to establish, and all the more so as vesicles and pustules are not unfrequently developed during the course of the disease. The affected part is very itchy, and, as the patient scratches it incessantly, the symptoms are aggravated; infiltration of the skin becomes very marked, and exudation of serum, pure or mixed with pus or blood, takes place, which concretes into crusts. While English and French writers, with a unanimity which is quite extraordinary, describe lichen as a separate disease from eczema, few of them have failed to observe cases of the former in which the likeness to eczema is so great, that they have given to them the name of lichen eczematosus, or eczema lichenoides

(synonymous with the term *lichen agrius*). But let us take a short description of this eruption from one of the standard authors. Hardy, for example, than whom a more accurate observer does not exist, writes of it thus:—"The skin becomes red, and upon this red surface small papules make their appearance, which become excoriated and secrete a serous fluid in considerable abundance. Amongst these papules some vesicles of eczema are detected, which give way, and are followed by superficial ulcerations, from which serum exudes and concretes into crusts. From this mixture of vesicles and papules there results a state of parts which has as much the appearance of an eczema as of a lichen, and which throws great difficulty in the way of a correct diagnosis." (b) Now, what have we here? We have a most accurate description of a typical exuding eczema, the only difference between it and the vesicular eczema of Willan being, that the principal lesion is a solid elevation (a papule), instead of one filled with serosity (a vesicle). I hope I have convinced my readers, then, that an *eczema lichenoides* is a true eczema, and not a separate disease; and, if so, let me finally point out that the dry lichen of authors is merely a less advanced stage of *eczema lichenoides*. The following case—and one meets with many such—shows that, under the influence of treatment, *eczema lichenoides* may assume all the characters of the typical dry lichen of authors:—

"Catherine B., aged 14, was admitted at the Dispensary for Skin Diseases, Glasgow, September 30,

1861, affected with *eczema lichenoides* of a year and a half's duration, occupying both popliteal spaces, and extending upwards for some way upon the posterior surfaces of the thighs. The patches were moist and distinctly papulated; considerable infiltration was detected; the itching was severe at times, and serous fluid exuded on scratching. There was an enlarged gland on the side of the neck. Cod-liver oil was prescribed internally; a solution of black soap was rubbed into the parts night and morning, and whenever the eruption was itchy; and the local cold douche was applied repeatedly. On October 10, ten days after the commencement of the treatment, the serous exudation had ceased, and the eruption now presented all the characters of a typical lichen as described in dermatological works. The patches were dry, rough, papulated, and the natural furrows of the skin greatly exaggerated. The infiltration of the skin and the itching, though moderated by the treatment, still continued."

But it may be said that lichen is occasionally a perfectly dry eruption throughout its whole course. Granted, although this is the exception to the rule; but it is merely because the inflammatory process has been arrested short of the exudation stage. Cases such as these must be put upon a par with cases of vesicular *eczema* in which the vesicles do not burst, but become shrivelled and dry up, and in which the eruption subsides without the occurrence of exudation. It must be allowed, however, that in the lichenous varieties of

eczema exudation is more frequently wanting than in the vesicular; but this, combined with the fact of the elementary lesion being a solid elevation, instead of one containing serum, is not enough to constitute a separate disease, as the eruption otherwise follows essentially the same course, and is amenable to the same treatment.

There is another variety of papulated eruption to which it is necessary to direct attention for a few moments—one which is described in all dermatological works with which I am acquainted as a separate disease altogether, under the name of prurigo, but which is merely a variety of lichen, and consequently of eczema. This is an eruption of papulæ scattered over the skin, and identical with the papulæ of lichen, notwithstanding that most writers try to establish differences between them in point of size, colour, &c. Now, if the patient is harassed with itching, and scratches himself much, the summits of the papulæ, being torn by the nails, become covered with yellowish or blackish crusts, owing to the exudation of serum or of blood. In addition to this, red and excoriated streaks and lines covered with coagulated blood are detected here and there upon the skin, being likewise produced by the nails of the patient. This is the so-called prurigo. But if the sensation of itching is not so severe, or if the patient refrains from scratching, these lacerations are not to be seen, and the eruption is one of lichen (*lichen disseminatus*). To be more plain, the difference between a lichen disseminatus and a prurigo is, that in the latter the patient scratches

the eruption more than in the former, and consequently produces abrasions of the skin. This is surely not sufficient to separate prurigo from eczema, although the word prurigo may be retained to indicate this form of eczema. We find it noted in books that in prurigo the cutaneous envelope is thickened and becomes darker in colour, owing to an excessive deposit of pigment; but this is one of the features of all long-standing cases of eczema, no matter what the form or what the elementary lesion, as it is due to the continued irritation and congestion of the skin.

The pruriginous form of eczema occurs more or less in all chronic cases of scabies and phtheiriasis—the diseases due to the presence of the itch-insect (c) and the louse respectively—and often in cases of urticaria; and I believe implicitly that a great many cases have been set down as instances of simple prurigo, when a more careful examination would have proved them to be pruriginous eruptions called out by the scratching induced by the presence of the itch-insect, or louse, or by the occurrence of an attack of urticaria.

And, lastly, the pruriginous form of eczema is often seen on one part of the body, and one or more of the other varieties of eczema on others; and in no instances more frequently than in cases of scabies.

5. *The Elementary Lesion a Fissure.*—This lesion is met with very frequently as a complication of the varieties of eczema which I have previously described, and is oftenest seen on those situations where the

skin is naturally thrown into folds, as at the anus, the angles of the mouth, and the joints. When the skin is in a healthy condition, it stretches with ease when the parts are moved; but, when an eczematous eruption is developed, its natural elasticity being gone, it gives way when put upon the stretch, thus giving rise to fissures, which are often deep and proportionately painful. Fissures, however, not unfrequently constitute the principal elementary lesion, though they usually form upon an erythematous ground, as in the vesicular and pustular varieties of eczema. While any part of the skin may be attacked, the most typical cases are to be met with on the hands, owing to the number of the joints, and the incessant and varied movements of the fingers. The number of the fissures varies much; there may be few, or, on the other hand, so many that they cross one another in all directions; and although at first superficial, they have a tendency, as the disease becomes more chronic, to increase in depth, thereby causing excruciating pain and bleeding, especially on movement of the affected parts. When the eruption is fully established, infiltration of the skin is superadded, and itching, though pain usually predominates. The fissures, when deep, are red and raw-looking, and either serum or blood exudes from them at certain times; thus giving rise to the formation of small crusts, which partially fill them up. Here, then, we have, as in the vesicular variety of eczema, an infiltrated, exuding, and itchy or painful eruption; and the only difference between the

vesicular and the fissured variety of eczema is, that the principal lesion is a vesicle instead of a fissure. This is the disease described in French works under the name of "Eczema fendillé;" and, as it is not portrayed in English dermatological works at all, I take the liberty, in conjunction with my colleague, of applying to it the term *eczema rimosum* (from *rima*, a fissure). A case of this form of eruption attacking the palm of the hand, will be referred to when the treatment is discussed.

The nature of *eczema rimosum* may be more forcibly impressed upon the mind, if the symptoms of "chapped" hands are considered, with which affection most people are too well acquainted. The skin is red, and superficial fissures occur which take the direction of the natural grooves of the skin. If appropriate treatment is not now adopted, the skin gradually assumes all the characters of a typical *eczema rimosum*, exhibiting an infiltrated, exuding, itchy, and painful fissured surface.

(a) "Traité Pratique des Maladies de la Peau," par Alph. Devergie. Ed. II., p. 442.

(b) "Leçons sur les Maladies de la Peau," par le Docteur Hardy. Première partie. Ed. II., p. 88.

(c) For a detailed description of these diseases see my work on the "Parasitic Affections of the Skin," pp. 104 to 145. London: Churchill and Sons. 1861.

CHAPTER III.

IN the last chapters, after describing the most prominent symptoms of eczema—the infiltration of the skin, the exudation on the surface of the skin, the formation of crusts, and the itching—I passed to the consideration of the elementary lesion, and pointed out that this may be an erythematous state of skin, a vesicle, a pustule, a papule, or a fissure. To sum up what has been said with regard to these lesions, the five following varieties of eczema may be enumerated, according as one or other of these predominates:—

1. The principal elementary lesion an erythematous state of the skin (*eczema erythematodes*).

2. The principal elementary lesion a vesicle (*eczema vesiculosum*), the typical eczema of Willan and Bateman.

3. The principal elementary lesion a pustule (*eczema pustulosum*, or *eczema impetiginodes*), the typical impetigo of Willan and Bateman.

4. The principal elementary lesion a papule (*eczema papulosum*, including lichen or *eczema lichenoïdes*, and prurigo, or *eczema pruriginosum*).

5. The principal elementary lesion a fissure (*eczema rimosum*), the *eczema fendillé* of the French.

These names—*Eczema erythematodes*, *vesiculosum*, *pustulosum*, *papulosum*, and *rimosum*—are of use in

describing cases of eczema, as each expresses in a word that which otherwise would take a long sentence to explain. But instances are seen, over and over again, of the predominance of one of these lesions on some patches, and of another on other patches of eczema, on the same person; and every one must have noticed cases in which, upon one patch, an erythematous state of the skin, vesicles, pustules, papules, and fissures are detected. To these the simple term eczema should be applied. What can the school of Willan make of such cases?

When a Willanist, deeply imbued with the belief that eczema must exhibit vesicles, has a case under his notice, it is quite painful to observe how he strains his eyes in quest of them, when, perhaps, none are to be found; or how pleased he is if, on a surface which we shall say is covered with innumerable papules, one small vesicle is at last detected, or even a papule, translucent on its summit, so as to give it the air of a vesicle!

It is necessary to observe that the symptoms of eczema which I have described have not been discussed in the precise order of their occurrence, as my endeavour has been to arrange them in such a way that the more prominent and least variable features of the disease may be more forcibly impressed upon the mind. Moreover, the symptoms vary much in the order of their manifestation. Most usually one or other of the elementary lesions is developed first of all, which induces itching. To allay this, the patient scratches the part; it becomes more inflamed, the eruption breaks out more abundantly,

infiltration of the affected part occurs, and this is followed by exudation on its surface, which finally concretes into crusts. In many instances, however, I believe the itching to be the first manifestation, to allay which the patient scratches himself, and thereby calls forth the elementary lesion, the infiltration, exudation, &c.: for we know well that scratching the healthy skin is quite capable of producing an eczematous eruption. Of this we have abundant evidence in cases of scabies, where an artificial eczema is often called forth by the scratching induced by the peregrinations of the itch-insect. But the order of occurrence of the various symptoms is of no great moment, so that it is unnecessary to dwell further upon this point.

Ulcers are often met with in cases of eczema, though they are usually small and superficial. They occur most frequently on the legs, where, from the tendency to congestion of the parts—owing to their distance from the centre of the circulation, their dependent position, and frequent association with varicose veins—they may become very large and deep, and may assume any appearance from the inflamed to the indolent. Eczematous ulcers occasionally assume alarming dimensions, as in the following case:—

“On May 11, 1861, I was sent for to the country for the purpose of seeing a little girl, aged about 10, who had been suffering for three months from a papulated eczematous eruption, principally affecting the back. When I saw her she was confined to the sofa, and at

that time her whole back, from the neck to the hips, presented an enormous ulcerated surface. The ulceration was quite superficial, and presented a slightly papulated aspect. It had all the appearance of an ulcer from a burn which was gradually contracting, and cicatrization was proceeding inwards from the edges. At the margin, also, papules and vesicles, containing opaque serum, were detected. Papules were likewise scattered thinly over the body, but especially on the brow. From the surface of the sore semipurulent matter was exuding. The little girl had been able to run about till within a week of the above date, since which time she had been confined to the sofa. Her general health was, however, good, except that she had suffered a little from the confinement and irritation of the sore.

“Dr. Robert Stewart of Coatbridge saw the patient along with me, and we agreed that the sore should be dressed with cod-liver oil, and Fowler’s solution administered in gradually increasing doses.”

I am indebted to Dr. Stewart for acquainting me with the result of the treatment. In a letter, dated October 22, 1861, he wrote:—“After you saw her she commenced with two drops of Fowler’s solution three times a-day. Each dose was increased by a drop each day, so that latterly she was taking thirteen drops of Fowler’s solution three times a-day, which had the most charming effect, and produced a decided cure. Altogether she must have taken, in the course of six or seven weeks,

two and a half ounces of the solution. I saw her regularly, and there never was a bad symptom." Cases of this severity are, however, of very rare occurrence.

Eczema is occasionally accompanied by feverish symptoms, especially at the commencement of an attack; but it is very extraordinary to observe how frequently a severe and extensive eruption, even in an infant, is coincident with the most perfect general health and total absence of fever.

A number of names, many of them quite useless, have been coined to express various forms of eczema. Some of these have already been discussed; for example, *eczema rubrum*, *impetiginodes*, *lichenoides*, &c., and, with the exception of the local varieties, which I shall detail afterwards, there are very few others which it is necessary to allude to.

Eczema simplex refers to a mild case of eczema; *eczema chronicum* to an eruption of old standing, in contradistinction to *eczema acutum*, in which it is of recent date, more inflamed, and accompanied by burning heat rather than by itching. *Eczema nummulare* is the name applied to the eruption when it forms small circular patches, like pieces of money. They are usually about the size of a crown, and are oftenest situated upon the lower extremities. Devergie remarks that this is the most difficult of cure of all the forms of eczema—an observation which corresponds with one of Hebra's, to the effect that the more limited the eruption the more difficult is it of cure. My own experience confirms

these statements in part only; for while I have found limited eruptions less under the influence of internal and of mild local treatment than those which are more generalised, I have also observed that they vanish with great rapidity under the use of more powerful agents, which can be applied with perfect safety.

Eczema marginatum is a variety well described both by Hebra and Devergie. The latter, however, notices it under the head of herpes. (a) It commences almost invariably on the inner aspect of the thigh, where it is in contact with the scrotum, and gradually extends circumferentially while it heals in the centre, so that when fully formed there is an elevated eczematous circle, or segment of a circle, sometimes extending from the lower part of the abdomen to the knee, and enclosing skin which is either healthy-looking or coloured by a deposit of pigment, the result of the previous inflammation of the part. It usually occurs on the inner aspects of both thighs simultaneously, in which case the eruptions on the two sides occasionally meet superiorly in the region of the pubis and inferiorly in the perineum. It is met with almost exclusively amongst shoemakers and dragoons (Hebra), a circumstance which is easily accounted for by the continued moisture and friction which these occupations entail in the situations referred to.

Lastly, there is a form of eczema first described by Liévain under the name of *Eczema unisquamosum*. I have never met with a case of it, and Devergie, who speaks of it, has only seen it once during a period of

fourteen years. According to him, it has its seat at the root of the nose between the eyebrows, and has a diameter of rather more than one-third of an inch. "After the acute stage has passed away," says Devergie, although he does not tell us what the acute stage consists of, "the secretion takes the form of a single epidermic lamella, which covers the whole of the affected surface. When it falls off it is replaced by another in about eight days, and so on." (b) Having no personal experience of this form of eruption, I can add nothing to the above description.

(a) "Traité Pratique des Maladies de la Peau." Ed. II., p. 273.

(b) "Traité Pratique des Maladies de la Peau." Ed. II., p. 239.

CHAPTER IV.

Ætiology.—Eczema attacks by preference those of the lymphatic temperament, the scrofulous, and the debilitated, these states of system constituting some of the predisposing causes, the exciting being usually some external or internal irritant. The disease, however, often attacks persons in the most robust health, in whom neither external nor internal irritation is apparent. These cases must be referred to some idiosyncrasy—the “Dartrous diathesis,” as the French call it, which is certainly a convenient word to cloak our own ignorance of its nature. Improper, insufficient, or bad food is very apt to call it forth. The most familiar illustration of this is to be met with in infants whose mothers have a deficient or unhealthy secretion of milk, or who insist upon nursing their children for eighteen months, or even for two or three years. On the other hand, though not nearly to the same extent, a too liberal diet, and too stimulating food and drink, predispose to, but rarely are the exciting causes of, eczema. Mental excitement seems to operate somewhat in the same way as excessive quantities of nutriment.

Eczema is apparently an hereditary disease, as there are numerous instances of parents and their offspring being affected, several of which are at present under my

observation. Devergie says, and very likely correctly, that eczema is not, strictly speaking, hereditary, but only the constitution which favours the development of an eczema. This is, however, a distinction without much difference.

Infants and females seem, *cæteris paribus*, to be more liable to it than males, being more excitable and their skins more sensitive. In the former, deficient lactation, as above mentioned, gastro-intestinal disturbance, and dentition; in the latter, derangement of the uterine organs—operate frequently as exciting causes. There can be no doubt likewise that the inflammatory action set up by vaccination is a frequent exciting cause of eczema in those who are so predisposed; the eruption in these cases commencing sometimes in the site of the operation, sometimes on distant parts, as on the head.

Atmospheric vicissitudes may give rise to an eruption of eczema, as alternations of heat and cold, a moist atmosphere, a variable climate, &c. The eruption makes its appearance much more commonly in summer and winter than in spring or autumn. Thus Devergie's statistics show that of 384 cases, 60 commenced in spring, 127 in summer, 28 in autumn, and 169 in winter; that is to say, 296 in summer and winter, and only 88 in spring and autumn.

A varicose condition of the veins, keeping up a constant hyperæmia of the parts, as we meet with most frequently on the legs and about the anus, is a powerful predisposing cause; so also are tumours pressing upon

the trunks of veins, and producing congestion of these parts from which the ramifications of the trunk are derived. It is in this way that uterine tumours, masses of impacted fæces, &c., predispose to eczema of the genital organs and anus.

While females are more liable to be attacked by eczema than males, the latter are more exposed from the nature of their occupations to the exciting causes. Those whose calling exposes their skin to the action of acrid substances or great heat, are often attacked, *e.g.*, cooks, grocers (hence the term "grocer's itch," the hands being the parts affected), bakers, smiths, bricklayers, &c. The heat of the sun sometimes produces eczema on the exposed parts of the skin (hence the term "eczema solare"). The use of hot and mineral baths, though often beneficial, sometimes calls out or aggravates an existing attack of the disease. Its occurrence is also favoured by working so as to heat the body much and produce perspiration, especially on those parts which are in contact with one another. Other irritants may likewise produce it, *e.g.*, the friction of thick flannel underclothing, the friction of opposed surfaces of skin, aided by the habitual moisture of the parts in some persons, as we meet with between the hips, in the axillæ, on the flexor surfaces of many of the joints, &c.

The application of stimulating liniments may call it forth, as croton oil liniment; likewise ointments, as antimonial ointment, blisters, the preparations of mercury (hence the term "eczema mercuriale"), sulphur,

and iodine, alkalies, acids, parasitic fungi, and animal parasites, *e.g.*, lice, fleas, bugs, and lastly and most important of all, the itch-insect; for almost all aggravated cases of scabies are complicated more or less with eczematous eruptions. This is owing to the scratching which the irritation of these parasites induces.

The irritation of the razor, especially when blunt, and irritating discharges from the nostrils, meatus, mouth, anus, and genital organs, are fruitful sources of eczema.

I have known patients affected by sleeping with those who were labouring under the disease, and I quite agree with Wilson in the opinion that this is often owing to the discharge from the eczematous eruptions acting as an irritant to the skin of the healthy person, though not always: for the cause is to be looked for, not unfrequently, in their being exposed to the same predisposing and exciting causes, as bad food, unwholesome dwellings, pediculi, &c.

Internal irritation may give rise to eczema, as that from teething, disordered stomach and bowels, ascarides, tapeworm, fistula, hæmorrhoids, stricture of the urethra, &c. Certain internal medicines may call it forth, *e.g.*, copaiva and turpentine, producing an erythema, which, by scratching, may advance to eczema. The internal administration of arsenic, and likewise the poisonous ingredients in the blood in cases of jaundice, sometimes cause intolerable itching, and the scratching thus occasioned may call forth an eczematous eruption.

CHAPTER V.

THE *diagnosis* of most cases of eczema is by no means difficult, if those symptoms which I have enumerated as being the most prominent and least variable are borne in mind. The itching, the infiltration, the exudation on the surface of the skin, the formation of crusts, and the punctated appearance of the exuding surface, are features which, though not invariably present, should be always kept in view when examining a supposed eczematous eruption with a view to its diagnosis. It must also be remembered that vesicles are by no means essential to the eruption, but that the principal elementary lesion may be either an erythematous state of the skin, a vesicle, a pustule, a papule, or a fissure, and that there is often a mixture of several or of all of these lesions on an eczematous surface. It will be apparent, from what has been said with regard to the causes of eczema, that the state of the system generally, however much it may guide us in treatment, affords a very small clue indeed to the diagnosis of the disease, and we must consequently rely almost solely upon its local manifestations.

Erythema can never be mistaken for eczema, if the meaning of the word is understood, and if the fact is kept in view that it is merely the first stage of an eczema, particularly of that form of it which I have described

as eczema erythematodes, and that most eczematous eruptions terminate in an erythema. We must therefore be prepared to find patches of erythema mingled with patches of typical eczema in cases of this disease.

Erythema is distinguished from eczema by exhibiting itself in the form of simple redness of the skin, accompanied in the second stage by exfoliation of the epidermis (pityriasis), by the itching being usually more moderate, by the absence of any appreciable infiltration, by the total absence of exudation on the surface of the skin, of vesicles, pustules, fissures and crusts.

I have known cases of eczema mistaken for *erysipelas*, an error which should rarely be committed, as they differ from one another in very many important respects. Thus, in *erysipelas* the disease tends to creep over the skin and continuously to invade new surfaces; the face and the lower extremities are the parts usually attacked; the redness of the skin is uniform, not punctated as in eczema; the edge of the eruption is abrupt, and the swelling often great. Again, while bullæ occasionally form on the *erysipelatos* ground, neither vesicles, papules, nor pustules are to be seen: there is no exudation on the surface of the skin (except from the rupture of bullæ), and burning heat, pain, and tension are invariably complained of in the advancing stages, rather than itching, which is only felt in the stage of desquamation. Lastly, *erysipelas* is usually an acute affection, which runs its course in a week or two, being preceded and accompanied by feverish symptoms of a low type.

Some of the varieties of *herpes* (I do not allude to herpes zoster, which can never be taken for it) may be mistaken for the vesicular form of eczema; but in the former the vesicles, which are arranged in clusters, are much larger, remain intact much longer, run their course in a few days, are not replaced by fresh crops, are not accompanied by infiltration of the skin to any extent, and itching is almost completely absent, being replaced by a sensation of burning heat.

The affection which is most liable to be mistaken for eczema is *Scabies*—the disease due to the presence of the *Acarus Scabiei*; not a recent case, however, but a chronic one which, owing to the long-continued and severe scratching, is complicated with eczematous eruptions. If the case is one of scabies, there is usually a history of the disease being communicated by contagion, and, as far as my experience goes, persons sleeping in the same bed with the patient for any length of time are sure to be affected likewise. Then we find in most cases, in different parts of the skin, but most readily about the hands or wrists, the little canals which the itch-insects form in the skin, the recent ones containing the acarus and its eggs in various stages of development. On scraping the garments which the patient wears next the skin, and placing the matter on a glass slide, the *débris* of acari and their eggs may sometimes be detected with the microscope. The above symptoms, when present, are conclusive as to the case being one of scabies. But the seat and character of the eruptions in scabies some-

times serve of themselves to clear up the diagnosis. Eczematous eruptions on the nipples of the female, or the penis of the male, or about the hands or umbilicus, are always very suspicious, and so are pruriginous eruptions, which are most abundant on the lower part of the abdomen, the inner aspect of the thighs, and the front of the fore-arms. If ecthymatous pustules on the hands, feet, and hips be superadded, the case is almost certainly one of scabies. But one must be careful not to be led into error by looking upon patches of eczema of the hands as proof positive of the presence of the itch-insect, unless several of the above symptoms are present also, as simple eczema often attacks, and is limited to, these parts. In doubtful cases, we should treat the patient as if he were labouring under scabies at first, (a) when the itching will be at once moderated if it is a case of scabies, but only slightly ameliorated if one of eczema. But although the itching does not entirely disappear under the use of sulphur, we must not conclude too quickly that it is not a case of scabies, for the treatment may not have been efficiently carried out, and even if it has been, the eczematous eruptions which have been called forth by the scratching in a case of scabies, may be a source of itching long after the acari have been killed. Cases, therefore, of scabies complicated with eczematous eruptions, are very liable to be mistaken for eczema; but if we are on our guard, the error is not likely to occur, unless there is no history of contagion, and unless we fail to detect the furrows of the acarus and the insect itself.

A typical case of *psoriasis* can never be mistaken for a typical case of eczema, but when patches of the former have lost their characteristic silvery scales, and when itching is complained of, as sometimes happens, they may be mistaken for eczema. But, in psoriasis, the patient's account of the appearance of the eruption at an earlier stage, the more dusky colour of the inflamed parts, the absence of that punctated appearance of the surface so often met with in cases of eczema, and of all moisture, the occurrence of characteristic patches of the disease on other parts of the body, the detection of the eruption on the elbows or knees, and the history of the case—should, in general, prevent error. And this leads me to state that very many cases are diagnosed incorrectly from confining the examination to one or two patches of the eruption, when, by exposing a larger surface and more patches, quite a different picture of the disease is obtained. I think it of great importance, in the diagnosis of all skin diseases, to see the whole or as much as possible of the skin, even although the patient says that there is no eruption except where he has indicated, as I have often found such statements to be either knowingly or unwittingly wrong.

Pemphigus foliaceus may be mistaken for eczema, and, indeed some dermatologists hold that it is not a variety of pemphigus at all, but of eczema, an opinion in which I cannot coincide. In pemphigus foliaceus the eruption usually commences on the front of the chest; when fully developed it covers the whole body, without leaving

intervals of sound skin; it is almost always fatal; bullæ are usually to be detected at some period of the disease; the infiltration of the skin is not great; itching not usually excessive; the scales and crusts are very large. In eczema, on the other hand, the eruption has no particular tendency to commence on the front of the chest; it never covers the whole body without leaving intervals of sound skin; it is never fatal; bullæ are not to be detected except in a few cases, and then on the soles and palms only, owing to the thick cuticle preventing the bursting of the vesicles; the infiltration of the skin is often great, the itching excessive, and the scales and crusts are not so large as in pemphigus foliaceus.

The disease first described by Devergie as *Pityriasis rubra*, (b) and later by Hebra, (c) may be taken for eczema; and, like pemphigus foliaceus, is regarded by some as a variety of that disease. I have seen three or four cases of this rare affection, one of which is carefully recorded by my lamented friend, Dr. M'Ghie (d), and the points which are most characteristic of it, in my opinion, as distinguishing it from eczema, are the uniform redness of the eruption terminating abruptly at the edges, but gradually extending till the entire cutaneous envelope is involved; the exfoliation of epidermic scales, which are easily detached, the masses separated being very large (often several inches in diameter), and so numerous that a basket full may often be removed in the morning; the burning heat; the very slight itching; the absence of infiltration and exudation to any extent, and

the complete absence of that punctated appearance of the skin so often met with in eczema, and of vesicles, pustules, or papules.

That rare form of skin disease described by Hebra (e) under the name of *Lichen ruber*, and not referred to, as far as I am aware, by any other author, presents many symptoms in common with eczema. In lichen ruber, however, the eruption consists of papulæ only, and in no case do we meet with either vesicles or pustules. Then, again, when the eruption becomes confluent, while there is redness and infiltration of the skin and epithelial desquamation, as in cases of eczema, there is no exudation whatever, nor formation of crusts, and the itching is only slight. And, lastly, when fully developed, the eruption covers the whole body, without leaving the smallest interval of sound skin, and it is almost invariably fatal in the long run, being preceded by marasmus. These are quite unknown occurrences in cases of true eczema.

Some forms of *syphilitic eruption*, and more especially eczema syphiliticum, may be mistaken for non-syphilitic eczema. But, in the diagnosis of the syphilitic affection, we are assisted by the history of the case, by the occurrence of the eruption after the contraction of a hard chancre, which was accompanied by induration of the glands in the neighbourhood; by its coincidence with other manifestations of syphilis, as engorgement of the posterior cervical glands, syphilitic headache, and rheumatism, burning heat of skin at night, ulceration of the

mucous membrane of the mouth, tongue, and fauces, and falling out of the hair. In addition to this, several forms of eruption are often noticed at one time on the skin in the syphilitic disease, as eczema, roseola, condylomata, &c.

But all these symptoms may be present although the eczematous eruption is not syphilitic, for there is no reason why a syphilitic patient may not be affected with non-syphilitic eczema. We are prevented from falling into error, however, by finding out whether or not the eczema appeared simultaneously with other syphilitic manifestations, and by carefully examining the eruption itself. If it is syphilitic, it is most apt to occur near the orifices of the body (about the nose, mouth, &c.), though it is by no means confined to these parts. It has a great tendency to assume the circular form, and to exhibit a coppery tint. Its edge is usually elevated. The ulcers, when present, are larger, deeper, more unhealthy-looking, and have perpendicular edges, and itching is not usually complained of.

There is just one other caution which it is necessary to give, and it is this, that non-syphilitic eczema occurring on the legs has a tendency to exhibit a decidedly coppery tint, and large ulcers with perpendicular edges and unhealthy bases. This is owing to the continued congestion to which these parts are subjected, owing to their distance from the centre of the circulation, to their dependent position, and to their being frequently the seat of a varicose condition of the veins.

If the case is still doubtful, treat the eruption by means of localized mercurial vapour baths, when, if it is syphilitic, it is sure to vanish.

There are several other forms of skin disease which may be mistaken for eczema, but I prefer alluding to them when the local varieties of eczema are discussed, in which place their diagnosis can be studied to better advantage.

(a) For the treatment of Scabies, see my work on the "Parasitic Affections of the Skin," p. 140. London: Churchill. 1861.

(b) "Traité Pratique des Maladies de la Peau." Ed. II., p. 442.

(c) "Handbuch der Speciellen Pathologie und Therapie. Dritter Band. Acute Exantheme und Hautkrankheiten," von Hebra. Zweites Heft, p. 321. Erlangen, 1862.

(d) *Glasgow Medical Journal*, January, 1858, p. 421.

(e) For a detailed description of lichen ruber, see "Handbuch der Speciellen Pathologie und Therapie. Dritter Band. Acute Exantheme und Hautkrankheiten." Zweites Heft, p. 315. Erlangen, 1862.

CHAPTER VI.

IN the preceding sections I referred to the symptoms of eczema, to the causes which predispose to, or occasion an attack, and to the diseases for which it may be mistaken. We are now prepared to form an estimate of the gravity of the affection.

The *prognosis* is rarely serious; for, while the eruption causes great irritation and disfigurement while present, it is almost invariably curable. The most serious cases are those in which the eruption covers the greater portion of the cutaneous envelope, especially when it occurs in very young infants or in old or infirm persons. In these instances, the natural functions of the skin are interrupted, and the itching may give rise to serious symptoms, such as convulsions, fever, exhaustion from anorexia, loss of sleep, &c. It is a very rare circumstance, however, for eczema to terminate fatally.

It is curious and interesting to watch the effect of intercurrent inflammations or fevers upon eczematous eruptions, a very good illustration of which occurred the other day in my practice. I was attending two children for very severe attacks of eczema erythematodes, affecting the greater portion of the skin. One of them took measles, and two or three days thereafter the eczematous eruption had almost disappeared. The eruption on the

other child continued to flourish for a few days longer, when she likewise was seized with measles, and in her case, too, the eczematous eruption vanished. There could be no doubt that these children were affected with measles; for while it was difficult to make out the rubeolar eruption on their skins, owing to the existing eczema, their younger brother presented about the same time all the characteristic symptoms of measles. When the rubeola had run its course in the cases of the two first-named children, the eczematous eruption gradually but perseveringly returned—a circumstance which unfortunately happens in most instances, and which must therefore be borne in mind with reference to the prognosis.

A great deal of nonsense has been written about the danger of suddenly “driving-in” (as the expression goes) a severe or chronic eruption, such as eczema. For, while I have treated hundreds of cases of eczema, many of them covering the greater portion of the skin, I have rarely witnessed any bad effect even from the rapid removal of the disease. That deleterious effects are occasionally witnessed, however, I am quite prepared to allow. I call to my recollection just now, for instance, the case of a gentleman, almost the whole of whose body was covered with an eczematous eruption. This I succeeded in removing in a few weeks, and, as it went away, he began to pass some blood by his bowels; but, as he himself wrote, he was “not conscious of any uneasiness in the region of the rectum, as if it arose

from piles." The same symptoms, he informed me, appeared during his recovery from a previous attack, for which he had been treated by Mr. Startin. In both instances it was slight, and soon passed away without producing any injurious effects; indeed, I have never observed any enduring bad results follow upon the removal of an eczematous eruption where proper precautions were taken, no matter how quickly it was accomplished. To this I shall again refer when discussing the treatment.

Attacks of eczema vary much in their duration, according to the constitution of the patient, the site, extent, and severity of the eruption, and the course of treatment pursued. Some cases get well without treatment in a few weeks; others last for months, or even years. Some would never disappear entirely at all without treatment; but the natural tendency of the disease is to diminish now and then, the change for the better being dependent upon the seasons, atmospheric influences, changes of diet, improvement of the general health, &c.

Relapses are very much to be feared, more especially in the case of those who are apparently in very good health, and in whom the occurrence of the eruption seems to be connected with some unknown peculiarity of the system. They are much less common in those who have suffered from the disease from the use of bad food, and the like; for we have here tangible causes, by removing which the eruption is less apt to occur.

Now, supposing that we have a case of eczema under observation, how do we know that the eruption is on the decline? What, in fact, are the *symptoms of amendment*? It is a good sign when the disease does not tend to spread by the extension of old patches or the formation of new ones, and when no new crops of eruption make their appearance upon the old patches. It is always a favourable occurrence when the infiltration, exudation, and itching diminish. When these symptoms are nearly gone, erythematous and scaly patches are usually left; but, if the disease is progressing towards a cure, the redness gradually subsides, the scales disappear, and the skin resumes its healthy appearance and feeling. It requires, however, to be mentioned, to avoid disappointment, that, when the eruption appears to be rapidly declining, sometimes for some obvious reason, oftener without any assignable cause, the improvement suddenly ceases, a retrograde movement takes place, and, in a few days, the cure is as far off as ever.

When the disease has disappeared, there is usually no trace left of the previous eruption, unless ulceration has occurred, and even then the surface usually resumes its healthy appearance, as the ulcers are for the most part superficial, and do not destroy the deeper tissues of the skin. When they are deep, however, as happens sometimes on the legs, cicatrices are of course left, which vary in size and appearance in proportion to the size, depth, and site of the previous ulceration. Cicatrices likewise follow the application of escharotics, which,

though powerful agents for good, are too often injudiciously used in the treatment of eczema. It need hardly be mentioned, however, that any caustic which has been used so freely as to destroy the deeper structures of the skin, and to leave permanent cicatrices, has been employed by an unskilful hand.

Sometimes, after the cure of an eczema, the skin, which had previously been affected, is much darker in colour than natural, owing to the previous determination of blood to the part, and the increased deposit of pigment thereby induced. This appearance is oftenest observed, and lasts longest upon the legs, for the reasons before alluded to as predisposing to the occurrence of ulcers. It is identical with the coloration which so often follows the application of a blister, instances of which are daily met with in practice; but, in both cases, the colour generally fades and finally disappears, and the skin resumes its healthy hue.

CHAPTER VII.

HAVING discussed the symptoms of eczema in its various forms, the causes which are fruitful in calling it forth, the diseases with which it may be confounded, and its results as far as they are indicated by the features of individual cases, we are prepared to enter upon the object of our previous investigations, the *treatment* of the affection.

It appears to me that no treatment can be more routine and ineffectual than that frequently adopted in this country for the cure of eczema; and cases of this disease are often allowed to go on for months and years, when judiciously selected applications could have removed it in the majority of instances in as many weeks; for there are few diseases more curable than even severe forms of eczema. The means of cure, which may be divided into the constitutional and the local, must vary, however, according to the age, existing state of health and constitution of the patient, and the seat, extent, and severity of the eruption.

I shall, first of all, direct attention to the *constitutional treatment*:—

It is necessary in this, as in all other diseases, to make a careful examination of the internal organs, and to rectify, as far as it is within the scope of medicine,

any deviation from the normal standard which may be detected, and which may be keeping up or aggravating the skin affection. My readers will be aided in this investigation by calling to mind what has been stated with regard to the causes of eczema, and with regard to those states of the system which are most likely to produce, or to intensify the severity of the eruption. In fulfilling this indication, one must be guided by broad general principles, with which, I take it for granted, my readers are already familiar. But I must say a few words with regard to derangements of the digestive organs, and more especially to the regulation of the bowels.

Purgatives are very useful in cases of eczema, though they must usually be looked upon merely in the light of adjuvants to, or forerunners of other treatment; and the medicine selected will depend to a great extent upon the inclination of the practitioner, and the features which each case presents. If the tongue is loaded, the appetite bad, the liver torpid, as indicated by the light colour of the evacuations, and the bowels costive; and if, in addition, the patient is not very strong—small doses of grey powder, combined with rhubarb and salicine or quinine, may be administered with excellent effect.*

* R Sulphatis Quinæ, gr. xij.
 Pulv. Rhei, gr. xxxvj.
 Hydr. c. Cretâ, gr. xxx.
 Sacchari Albi, ʒj.

Divide in Pulv. xij.

Sig. Two daily. (For an adult.) The dose to be so regulated that the patient has at least one full natural evacuation per day.

If the digestive organs are in the state just mentioned, and the patient robust, and especially if fullness in the hepatic region is complained of, occasional doses of calomel, alone or in combination with scammony, may be resorted to with advantage, as they have the effect not only of correcting the torpidity of the digestive organs, but also of "cooling the blood," as the saying is, and of diminishing the cutaneous inflammation.* They may therefore be given with the latter end in view, although the liver and bowels are not in a torpid condition. A calomel purge may likewise be prescribed occasionally, if the eruption is extensive, causing much irritation, and exuding copiously; and if the occurrence of any untoward symptom is to be feared from its too rapid removal, by other, and more especially by local means. (See page 45.)

With the same object in view, and much more universally employed than calomel, though on the whole not so useful, small doses of sulphur, in combination with magnesia or bitartrate of potash, may be taken

* R Protochloridi Hydrargyri, ʒj.
 Pulv. Scammonii co., gr. xl. M.

Divide in Pulv. iv.

Sig. One every week. (Dose for an adult.) Or,

R Protochloridi Hydrargyri, gr. iv.
 Mas. Pil. Coloc. co. gr. v.
 Extr. Belladonnæ, gr. j. M.

Divide in pil. ij.

Sig. One at bedtime, and a seidlitz powder in the morning. (Dose for an adult.) To be repeated two or three times weekly.

every evening, and as good a preparation as any is the sulphur confection (*Confectio Sulphuris*) of the Dublin Pharmacopœia, of which about a teaspoonful may be prescribed. Besides being less effectual, in my opinion, than calomel, it has this additional drawback, that the sulphur is converted into sulphuretted hydrogen, and the secretions have accordingly a very unpleasant odour. It has this advantage over calomel, however, that it is in part eliminated by the skin, and acts beneficially upon that structure, so that it possesses alterative as well as purgative properties. A more pleasant and more elegant preparation is a solution of three or four drachms of sulphate of magnesia in water, with the addition of two scruples of bicarbonate of soda, and made to effervesce by the addition of half a drachm of tartaric acid.* This may be repeated every second night. If the patient is of a full habit of body, and if, in addition, he lives too freely, and cannot be prevailed upon to live sparingly, a smaller dose of sulphate of magnesia (say $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{ii}$.) may be administered twice daily, from a sixth to half a grain of tartar emetic being added to each dose, so as to

* R	Sulphatis Magnesiae, $\mathfrak{z}\text{ij}$.	
	Bicarbonatis Sodæ, $\mathfrak{z}\text{ij}$.	
	Aquæ, $\mathfrak{z}\text{ij}$.	M.
R	Sacchari Albi,	
	Acidi Tartarici, āā $\mathfrak{z}\text{ss}$.	
	Syrupi Limonum, $\mathfrak{z}\text{ss}$.	
	Aquæ, $\mathfrak{z}\text{iv}$.	M.

Sig. Mix the two solutions in a large tumbler, and drink during effervescence. (Dose for an adult.)

deprive him in great part of his appetite for a time. In this case the solution should not be administered in effervescence, else the nauseating action of the tartar emetic may be counteracted.

The doses which I have recommended are for adults, and are merely approximative, for of course some constitutions are more susceptible of the action of purgatives than others, and care must be taken to avoid the administration of mercurials as much as possible in the case of those with whom they disagree. Not long ago, for instance, I gave a couple of grains of calomel and three of grey powder to a little girl, which gave rise to the most profuse salivation, ulceration of the mouth, and swelling of the gums and submaxillary glands. Now, this is far more remarkable than the production of similar symptoms in the adult, even with the same dose; for, as a general rule, as all practical physicians are aware, it is much easier to salivate an adult than a child.

Having attended to the condition of the internal organs in general, and of the digestive organs in particular, the internal treatment now radiates in two directions, according as the eruption occurs in the case of those who are apparently in the most robust health, in whom the eczematous eruption is called forth in virtue of some peculiar idiosyncrasy (see the causes of eczema, page 31) or of those who are scrofulous or debilitated from insufficient or unnutritious food, or from previous disease.

In the latter, nourishing food, tonics (especially those

containing iron), and cod-liver oil, are our sheet-anchors, and I have repeatedly cured very severe cases of eczema by the systematic administration, for a couple of months, of cod-liver oil and syrup of the iodide of iron, all other treatment of importance having been omitted. The following is a case in point, in which I purposely refrained from additional means of cure, in order that the charming effect of the oil and iron alone might be demonstrated to my students:—

“Lawrence D., aged about fifteen months, was brought by his mother to the Dispensary for Skin Diseases, Glasgow, on October 9, 1862, affected with eczema impetiginodes. The eruption covered almost the whole body, with the exception of the fingers and feet, was very itchy, constantly exuding, and studded with crusts. The child was dreadfully emaciated, ‘just skin and bone,’ as the mother remarked. It could neither sleep nor eat, and was so weak that it had to be brought upon a pillow. The case looked hopeless, and, indeed, the child had been given up by the previous attendant; but acting upon what I have observed in similar cases, twenty drops of syrup of the iodide of iron in a teaspoonful of cod-liver oil were prescribed, to be repeated thrice daily, and the dose of the oil to be gradually increased to a tablespoonful.

“On October 16 the child was better. The skin being still itchy, however, a lotion of dilute hydrocyanic acid (Ed. Ph.), containing twenty minims to the ounce of water, was ordered, to be used thrice daily. The oil was

omitted for a week, as it produced purging. With this exception, the oil and iron were continued uninterrupted till November 17, about five weeks after the commencement of the treatment, when the mother brought the child out of gratitude to show how well it was. There was hardly a vestige of the previous eruption, with the exception of a few dry crusts and discoloured spots on the buttocks, which were rapidly disappearing. The child appeared to be in robust health; it was quite plump, and its cheeks rosy; its skin soft and white; its appetite very good; and its sleep sound and refreshing. The medicine was to be continued for another month."

Here, then, is an instance of an infant cured of a frightful eczematous eruption, and rescued from the jaws of death by the internal administration of cod-liver oil and iron alone. In severe cases such as this, it is sometimes of advantage to rub the oil into the skin of the whole body two or three times a day in addition to its administration internally. Cod-liver oil is sure to do good to these patients if the stomach bears it, and especially if it is taken greedily and with relish by the patient. This is oftenest observed in children whose mother's milk is below par. When this is detected, the mother should no longer give her child the breast, and, amongst the higher classes, who can afford to have a wet nurse, a good one should at once be procured. Amongst the lower orders the child should be fed, in great part, "upon the bottle," a mode of nourishment

which, though inferior to the employment of a good wet nurse, is much more desirable than the exclusive use of the deteriorated milk of the mother. Those children whose health has been impaired by imbibing their mother's milk too long—and instances are often met with, especially amongst the poor, of children being fed upon the breast, not for months, but for years—should be weaned without delay, and appropriate nourishing food substituted.

These children often suffer from diarrhoea, but while special remedies, guided by general principles, may be cautiously employed towards its removal, one must remember that it is often the result of debility, in which case it may be expected to disappear spontaneously when the diet is altered and the general health improved.

In adults under similar circumstances, cod-liver oil and iron are almost equally serviceable, and in them, and likewise in children, small quantities of stimulants may in some cases be superadded, though it is generally advisable to use them with caution.

Some patients, and adults oftener than infants—for the latter rarely refuse it if the system really requires it—cannot take cod-liver oil, in which case cream may be substituted, though it is not so beneficial; and, while taken with relish at first, it is more like to derange the stomach in the long run. So that if the case is undoubtedly one which calls for the use of the oil, it does not do to let the patient put it aside lightly, but repeated trials of it in various doses must be made, and

the bowels must always be carefully regulated before administering it. Sometimes it is tolerated better by swallowing a small pinch of magnesia about half an hour after the oil is taken, as was recommended lately in some of the medical journals.

When the appetite is very deficient, a pure tonic may be substituted for a ferruginous one with advantage, such as small doses of quinine and sulphuric acid in a bitter infusion;* or, if the stomach is too weak even for this, a little dilute sulphuric acid alone may be tried, which should be given in half-drachm doses twice daily in a wine-glassful of cold water, and which is usually well borne.

But let us now take the opposite class of cases—and very common they are—in which the patients are neither ill-fed, scrofulous, nor debilitated; but, on the contrary, appear, with the exception of the eruption, to be in a good state of health. In such instances, then, what means, operating upon the system at large, are we justified in having recourse to?

Some recommend the abstraction of blood by means of the lancet, but this is hardly ever necessary; indeed, I have neither had recourse to it myself, nor seen it

* R Sulphatis Quinæ, gr. xvj.
 Acidi Sulphurici Aromatici ʒiv.
 Syrupi Limonum, ʒss.

Inf. Cascarillæ ad ʒviij. M., et cola per chartam.

Sig. A tablespoonful twice daily, half an hour before food. (Dose for an adult.)

employed by others; for, while many severe and extensive eruptions in plethoric persons have come under my observation, I have found purgatives—especially those containing calomel—answer all the ends in view. The local abstraction of blood by leeches, cupping-glasses, or scarifications, may sometimes be resorted to with advantage, if the patches of eruption are much inflamed, and especially if the lower extremities are affected, as these parts, for reasons formerly mentioned, are more liable than others to congestion and its results. Even local bleeding may, however, be dispensed with in the majority of cases, although I am aware that this opinion will be regarded in the light of a heresy by some.

The diet must be very carefully regulated, and the patient warned to eat very moderately and slowly, and to masticate his food well. A simple mixed animal and vegetable diet may be recommended; dressed dishes, pastry, pickles, spices, strong tea, and coffee, being particularly avoided. The use of wine, spirits, and malt liquors must, in general, be suspended for a time at least, though in some instances they may be taken sparingly. But one must be cautious, in the case of those who have previously been in the habit of taking them in excess, of discontinuing them all at once, and it must be remembered in reference to prognosis, that the cure of an eczema is much more difficult when the patient has been much addicted to the use of stimulants.

In some cases it will be found of advantage to prescribe milk diet for a time, all animal food being avoided.

In the cases which I am now considering, and applicable, to a certain extent, to the class previously alluded to, in conjunction with the means then recommended, there are three classes of internal medicines upon which I place considerable reliance, but especially upon the first, for the removal of the eczematous eruption. These are the preparations of arsenic and sulphur, and alkalies.

Of the arsenical preparations, the one which I am most in the habit of employing is Fowler's solution (*Liquor Arsenicalis*, Ed. Ph.), although any of the others may be selected, according to the taste of the practitioner. I think it better, however, that the physician should limit himself as much as possible to one preparation of arsenic, for he thus becomes more familiar with its exact mode of operation, and with the probable dose for different constitutions. An adult may commence with five minims thrice daily, and at the end of a week or so, if it agrees, the dose should be increased by a drop every second or third day, till the disease begins to yield or the medicine disagrees. I do not think it necessary to stop it if slight irritation of the eyes or puffiness of the face is induced; but if these symptoms are at all aggravated, and especially if they are accompanied by pains in the stomach and head, anorexia, and nausea, the dose should be diminished, or in some cases omitted for a few days. On no account, however, should its administration be omitted altogether, because these physiological effects are produced; and I thoroughly endorse the statement of Dr.

Begbie, that, "in order to secure its virtues as an alterative, it will be necessary to push the medicine to the full development of the phenomena which first indicate its peculiar action on the system. Arsenic, as a remedy, is too often suspended, or altogether abandoned, at the very moment its curative powers are coming into play. The earliest manifestation of its physiological action is looked upon as its poisonous operation; the patient declares that the medicine has disagreed with him; forthwith the physician shares his fears; the prescription is changed, and another case is added to the many in which arsenic is said to have failed after a fair trial of its efficacy." (a) It is necessary to observe, that the appropriate dose of Fowler's solution varies in different individuals, and that, while five minims thrice daily soon disagree with some, ten, fifteen, twenty, or even thirty, may be taken by others with impunity and with benefit. I have repeatedly had occasion to observe—what has not, as far as I am aware, been previously noted—the great liability of patients to catch cold while they are taking arsenic; and I have so frequently seen bronchitis developed during an arsenical course, as to leave no doubt in my mind of the cause of it. It is therefore as necessary to warn patients who are taking an arsenical, as it is those who are being subjected to a mercurial course, of their liability to catch cold.

To prevent the medicine from deranging the stomach, it should always be given *immediately after* food, and in

persons whose digestive organs are weak, a tonic infusion, such as the infusion of cascarilla or gentian, forms a very good vehicle for its administration, while, in some cases, even a few drops of morphia may be superadded * if the stomach is very easily deranged.

As the disease yields, the dose may be gradually diminished, but in no case should its use be suspended till some time *after the complete removal* of the eruption.

In the case of infants at the breast, it is advisable to administer the arsenic to the mother, whose milk thus furnishes not only nourishment to her babe, but likewise an antidote to its complaint. In children of one or two years one minim may be given twice daily, and the dose gradually increased.

In some cases it may be thought advisable to combine arsenic with mercury, as in Donovan's solution (solution of the hydriodate of arsenic and mercury) of which ten minims may be administered thrice daily, the dose being gradually increased. Each drachm of the solution contains about $\frac{1}{12}$ th of a grain of oxide of arsenic, $\frac{1}{4}$ th of a grain of oxide of mercury, and $\frac{5}{7}$ ths of a grain of iodine in the state of hydriodic acid in chemical combination. (b)

And sometimes it is beneficial to prescribe arsenic

* R Sol. Fowleri,
Sol. Muriatis Morphiæ, āā, ʒij.
Syrupi Limonum, ʒss.
Tinct. Cocci Cacti, ʒss.
Infus. Cascarillæ, ad ʒxij. M.

Sig. A tablespoonful thrice daily.

along with iodine, and without mercury, in which case Neligan's prescription, which he names the ioduretted solution of the iodide of potassium and arsenic* will be found a very good one indeed, and is much used.

I very frequently make use of a private mark, known to two or three apothecaries, in prescribing arsenic, and I think with good reason. For instance, I know of a lady for whom Fowler's solution was prescribed, who, finding that she was improving under its use, increased the dose of her own accord, and thereby induced poisonous symptoms. Some time after this, she consulted Cazenave, and on her return from the Continent she came to her family physician, and informed him that she had never been able to take arsenic since she had administered to herself the overdose. The doctor, on looking at Cazenave's note, found that she was at that very time taking arsenic without knowing it, under his orders, and with good effect. Then again, some people who consult me have already tried arsenic without benefit, and either refuse to take it again, or are so sceptical of its efficacy, that they take it with great irregularity, and are convinced in their own minds that they are to derive no benefit

* R Sol. Fowleri, ℥ lxxx.
Iodidi Potassii, gr. xvi.
Iodini, gr. iv.
Syrupi Florum Aurantii, ʒ ij.

Sig. A teaspoonful, in a wine-glassful of water, thrice daily.—("Medicines their Uses and Mode of Administration." Ed. 4. P. 465.)

from it—conditions which are very prejudicial to the due operation of any drug.

Very often, in these cases, the previous arsenical course had been improperly carried out, or not continued sufficiently long, and we are thus compelled either to give it in a concealed form, or to dispense with the use of a most powerful therapeutic agent.

The preparations of *sulphur*, though not so generally useful as those of arsenic, are highly serviceable in the treatment of some cases of eczema, especially when the eruption occurs in persons of the lymphatic temperament, and when it is on the decline. When speaking of the administration of purgatives, I stated that the advantage which a sulphur purge possesses over a calomel one is, that it is eliminated in part by the skin, and exercises an alterative effect upon that structure. If, however, we wish to avail ourselves to the full extent of its alterative action, it is advisable to prescribe a course of one of the natural mineral waters which contain sulphur. Those of Harrogate and Moffat in this country, and of Enghien, Baréges, and Luchon on the Continent, have the greatest reputation in this respect; and, while some of these waters may be had from the apothecary, it is always more judicious, when it can be effected, to send the patient to the spring itself; for he is thus certain to get the waters fresh and pure, and, away from home and the fatigues and anxieties of business, his body is at the same time invigorated and his mind refreshed.

Alkalies are not nearly so generally employed as the preparations of arsenic and sulphur in the treatment of eczema. They are most beneficial when the patient is much addicted to the use of stimulants, and when there is a tendency to acidity of the stomach and to the deposit of lithates in the urine, or to gout or rheumatism. The preparation most in vogue is aqua potassæ, which may be given, largely diluted with water, in doses of twenty minims thrice daily to an adult. The alkali which I am most in the habit of using, however, and which has not, I think, been tried hitherto in this country for such a purpose, is the sesquicarbonate of ammonia in doses gradually increasing from ten up to thirty or even forty grains thrice daily, care being taken that the preparation is fresh and of full strength. A dose of forty grains is often borne well by a patient whose stomach has been gradually accustomed to its reception, while a smaller dose often occasions vomiting in the case of those who have not been in the habit of taking it. Sometimes it is well to combine the ammonia with Fowler's solution or one of the other arsenical preparations. If there is a decidedly gouty tendency, small doses of wine of colchicum (say ten drops), and in rheumatic habits, the acetate or bicarbonate of potash (in half-drachm doses) may be added to each dose. The alkalies must be given *largely diluted* with water, and the dose must be gradually increased till the medicine disagrees or the eruption begins to fade.

Hydrocotyle Asiatica has been greatly extolled of late, especially by the French, in the treatment of eczema. It has been very little used in this country, however, although it seems well worthy of a trial, if we may judge from the high encomiums which have been passed upon it by our Continental brethren. I have not yet tried it in Dispensary practice, owing to the narrow-minded policy of the French manufacturer, who sells each little bottle of granules at five francs; and, as there are about eighty granules in a bottle, it follows that every ten or fourteen days five francs must be expended, which is too much for the ordinary run of Dispensary patients. The directions for the use of the granules are given in a paper, which is enclosed along with each bottle.

Before leaving the internal treatment, it may be well to recall four rules which must be carefully attended to in the employment of alterative medicines:—

1st. Let the dose, at first small, be gradually increased till the medicine disagrees, or till the disease begins to yield, and then let it be gradually diminished.

2nd. If the medicine disagrees, do not omit it altogether without very good reason, but try it in smaller doses, or in another form, or omit it for a few days till the bad effects have passed off.

3rd. To give it a fair trial, it must be continued for a considerable period of time, because in some cases the eruption does not disappear till after it has been administered for many weeks.

4th. Do not permit the patient to give up taking the medicine till some weeks have elapsed since the complete disappearance of the eruption.

(a) Dr. Begbie's article "On the Physiological and Therapeutical Effects of Arsenic" will well repay perusal. See his "Contributions to Practical Medicine," p. 270. Edinburgh: Adam and Charles Black. 1862.

(b) "Medicines: their Uses and Mode of Administration." By J. Moore Neligan, M.D. Ed. 4. Dublin.

CHAPTER VIII.

IF, as I hope, I have convinced my readers of the great benefit which accrues from the judicious selection of internal remedies in the treatment of eczema, and of their power, in many instances, of removing the eruption when administered alone, they will, perhaps, be hardly prepared for the statement which I make, as the result of some experience, that the *local* treatment is even more effectual than the constitutional, although it must be confessed that the applications made use of by many practitioners in this country are unfortunately too often ineffectual, and not unfrequently injurious.

I shall not attempt a description of all the preparations in general use in the local treatment of eczema—some of them good, some useless, many hurtful—but shall give a short account of those which I have found most valuable, and, what is of the greatest importance, point out, as far as possible, the indications for their use.

The first point in the local treatment of every eczematous eruption, without exception almost, is to remove all the crusts which have formed upon it. Till this is done, we can only guess at the condition of the parts beneath; our applications must, in consequence, be selected at random, and these cannot reach the diseased surface whose condition they are intended to modify. One

often meets with opposition on the part of the patient or friends in carrying this injunction into effect, either owing to their laziness, to their preconceived opinions, or to the pain which is sometimes experienced in the removal of the crusts. Patients come to me, day after day, informing me that they have done what they could, but have only partially succeeded. The physician should, in such instances, repeat his instructions, and send his patient home again, and should refuse to prescribe any local applications till the diseased surface is fully exposed to view, by which means much less time is lost in the end, and the subsequent treatment is much more satisfactory.

The removal of the crusts is a very easy matter, and each practitioner has his own favourite method of procedure. I usually recommend a poultice composed of crumb of bread and hot almond oil to be applied to the eruption at night, and if the crusts do not come away with the poultice in the morning, the part should be lubricated with fresh almond oil, and the crusts removed with the finger nail about half an hour afterwards, when they have become thoroughly softened. When the crusts reappear, as frequently happens, especially at the commencement of the treatment, they must invariably be removed before the reapplication of the curative agent.

Supposing now that all the crusts have been removed, and the diseased surface fully exposed to view, what local applications are to be made use of?

If the eruption has just made its appearance, if the surface is acutely inflamed, if it is studded with numerous vesicles or pustules, but particularly if *burning heat* is complained of in place of itching, local sedatives must be employed. A very good application is a cold potato-starch poultice, a small quantity of a powder containing camphor being sprinkled over its surface before being applied, which relieves at once the burning heat.*

Or, instead of poultices, emollient ointments may be employed, such as the simple or benzoated oxide of zinc ointment, cucumber ointment (Neligan), or cold cream. A mixture of powdered oxide of zinc and glycerine, or olive oil, in the proportion of half an ounce of the one to two ounces of the other, forms likewise a very soothing application, and to these may be added a little camphor if necessary.†

When the disease becomes chronic, as is indicated

* R Camphoræ, ʒss.
Alcoholis, q. s.
Pulv. Oxydi Zinci.
Pulv. Amyli, āā ʒijj. M.

Sig. Sprinkle a little over the part, or upon the poultice occasionally, to allay the burning heat. Let a small quantity be made at a time, and let the powder be kept in a stoppered bottle, as it loses its strength by exposure to the air.

† R Camphoræ, ʒij.
Pulv. Oxydi Zinci, ʒss.
Glycerinæ, ʒij.
Cochinillini, gr. ij.
Olei Rosae, ℥iii. M.

Sig. Stir the mixture before using it. Smear a thin layer over the inflamed part twice or thrice daily. A most elegant formula.

more particularly by the disappearance of the burning heat, and the supervention of itching, the local applications which are appropriate are very different; but even they vary according to the stage of the eruption.

If there is *infiltration* of the skin to any extent, the local treatment which I am in the habit of prescribing is that recommended by some Continental dermatologists—in connection with which the name of Hebra must always be honourably associated—and which has only of late began to peep forth in fragments in English medical journals. This is the treatment by means of *potash* applications, which has been uniformly adopted at the Dispensary for Skin Diseases, Glasgow, and with great success. Having had the privilege some years ago of witnessing the carrying out of this means of cure in Hebra's wards at Vienna, some of the prescriptions may resemble very much, or even be identical with those of that distinguished dermatologist, though I am unable to state at this moment which are due to him, and which are mere modifications of my own. I trust, however, I have sufficiently done justice to his merits, and that I shall be acquitted of the desire of taking any credit, except in so far as the success of this treatment has been first thoroughly established in this country by my colleague, Dr. Buchanan, and myself.

The strength of the local application varies with the amount of the infiltration, and likewise with the extent of the eruption; for of course when the disease is extensive, it would be injudicious to make use of those very

strong applications which may be applied with safety in the more circumscribed cases.

If the infiltration is slight, or the rash extensive, common *potash soap* (soft soap, black soap, *sapo mollis*, *sapo viridis*), or a solution of one part of it in two of boiling water, a little oil of rosemary or citronella being added to conceal in part the odour, may be used.* A piece of flannel dipped in this should be rubbed as firmly as possible over the affected parts night and morning, and the solution allowed to dry upon them, though it should be washed off before each reapplication; or a piece of flannel wrung out of the solution may be applied to the part, and left in contact with it all night if the patient can bear it.

A more elegant preparation is the *aqua potassæ* (Ed. Ph.), which may be painted over the eruption night and morning with a large brush, its irritant properties being neutralised by means of cold water when the smarting becomes excessive.

Instead of soft soap or *aqua potassæ*, solutions of *potassa fusa* may be employed. In the mildest cases, with only slight infiltration, two grains of *potassa fusa*, in the more severe, five, ten, twenty, thirty grains, or even more, in an ounce of water may be used, but I rarely resort to a stronger solution where the eruption is extensive. Even the solution containing thirty grains

* R Saponis Mollis, ʒi.
 Aquæ Bullientis, ʒij.
 Olei Citronellæ, ʒss. M.

to the ounce, which may be applied in the same way as aqua potassæ, must be washed off with water very speedily, and the application should not be repeated oftener than once daily at the most. When such a strong solution is prescribed, and especially if the eruption is extensive, it is advisable for the physician to apply it himself, at first at all events. The solution has been used too strong, or been allowed to remain on too long, if it produces any manifest destruction of the skin. When the eruption is very limited and very obstinate, a much stronger solution may be applied, and Hebra sometimes uses a solution of one drachm of potassa fusa in two drachms of water, or even the solid caustic itself. This must be done, however, with the greatest circumspection, and the caustic washed off almost immediately, else it is certain to produce great destruction of the skin.

When these strong applications are used, and there is a tendency to the formation of fissures, it will be well to apply cod-liver oil or glycerine to the parts every night, by which means that brittle condition of the skin, which is so much favoured by the use of potash locally, and which leads to the formation of fissures, is in part avoided.

Instead of potassa fusa, some recommend solutions of chloride of zinc in similar proportions, but I have very little experience of it, being so well satisfied with the performances of the former. The following case, however, proves that it is a useful agent:—

"Hugh D., aged about 40, saddler, came to the Dispensary for Skin Diseases, Glasgow, March 17, 1862. Small patches of eczema were noticed on the backs of his hands, sides of his fingers, and about his wrists. These were very itchy, with a good deal of infiltration; some of them studded with vesicles, and exuding a serous fluid, others dry and scaly. Although some of the patches were situated over the joints of the fingers, there were no fissures. A solution of chloride of zinc (℥j. to the ℥j. of water) was ordered to be painted over the affected parts morning and evening; and if the action was too severe, it was to be moderated by the use of cold water. In the intervals between the applications he was to bathe the hands repeatedly in cold water.

"*March 24.*—Greatly improved; itching nearly gone; infiltration of skin much diminished; serous exudation very slight, and only after the application of the zinc lotion.

"The patient noticed a slight tendency to the formation of new vesicles on and around the patches, which was at once checked, however, by the lotion.

"*March 31.*—Eruption gone."

When any of these irritants are made use of, they cause smarting, and when stronger mixtures are applied, often considerable pain; but patients have informed me that, although the smarting and pain are severe, they prefer it to their old enemy, the itching. On the other hand, some patients, although this is rarely the case, will not submit to a repetition of the remedy. I was

particularly struck with this in the case of a medical man in this city, who consulted me some time ago about an extensive eczematous eruption of old standing, and for whom I prescribed the mildest of the applications above referred to. He told a friend, shortly after, that he had applied it once, and that it had nearly killed him; the fact being that he had been affected with eczema so long, and had tried so many useless drugs, that his faith in the effect of remedies was shaken, and he would not give a fair trial to a system of treatment which, though a little unpleasant at first, would certainly have cured him. But medical men are notoriously the worst and most refractory patients to deal with.

Having pointed out that the strength of the potash or zinc solutions which are employed varies with the amount of infiltration of the skin, it will probably have occurred to the reader that, when the eruption is extensive, and some of the patches much more infiltrated than others, a weak solution may be applied to the latter, a stronger one to the former; and it is equally obvious that, as the infiltration subsides, the solution may be gradually diluted.

Often, by continuing the use of a weak potash solution for some time after the infiltration is gone, all trace of the complaint disappears; but in most instances it is better to substitute for it one of the preparations about to be mentioned, as the disease verges upon a cure. But if, on changing the local application, the infiltration of

the skin reappears to any extent, it is necessary at once to have recourse to the potash solutions again. I have just one caution to give before leaving this subject, namely, that care must be taken in the use of these solutions, and especially the stronger of them, in the case of infants, of delicate females, or of old and infirm persons; as the shock produced by their application may possibly be followed by serious results.

While these preparations are being employed, cold water forms a very agreeable and useful adjunct. The affected parts may be bathed repeatedly with it during the day, and it is advisable that it should be allowed to fall upon them from a height. Sometimes cloths wrung out of cold water may be placed upon the eruption with advantage in the intervals between the applications; and if the rash is very extensive, much relief is experienced by plunging into a cold bath, or making use of the shower-bath or cold douche.

I have already pointed out that in mild cases the eruption is often kept up by the scratching alone, and that in these instances local sedatives have sometimes the effect of curing the disease by allaying the itching, and the desire to scratch the part. Hence it will be understood how, in more severe cases, while the scratching does not of itself keep up the disease, it tends to aggravate it and to make it more rebellious.

We must, therefore, exhort the patient to refrain from scratching as much as possible, and at the same time

must employ means to allay the itching. The potash and zinc preparations have certainly this effect in a marked degree, and so has the application of cold water (for the time); but sedatives and narcotics taken internally are not, in my opinion, of the slightest service, except in so far as a large dose may produce sleep, and, when the patient has long been deprived of it, owing to the itching, this is much to be desired. Lotions of dilute *hydrocyanic acid*, in proportions varying from $\mathfrak{m} \text{v.}$ to $\mathfrak{z} \text{j.}$ (Ed. Ph.) in an ounce of water or glycerine, may be applied with advantage whenever the part is itching, instead of *giving way to the desire to scratch*.

When such a strong solution as $\mathfrak{z} \text{j.}$ of prussic acid to the $\mathfrak{z} \text{j.}$ of water is used, it must not be applied over a very extensive surface, and the patient must be warned that it is a very powerful poison. The potash solutions previously referred to, are of the greatest service for the alleviation of the itching, as well as for the removal of the infiltration of the skin, so that it is often advantageous to combine the prussic acid with one of them, as in the accompanying prescription.*

Some prefer the use of cyanide of potassium in the form of ointment. For this purpose from five to ten

* R Potassæ Fusæ, gr. v.
Acid. Hydrocyan. dil. (Ed. Ph.), $\mathfrak{O} \text{ij.}$
Aquæ Rosarum, $\mathfrak{z} \text{j.}$

Sig. Rub a little firmly over the eruption night and morning, and when the itchy sensation is severe.

grains may be mixed with cold cream, or the benzoated oxide of zinc ointment.*

Although I have been in the habit of using the preparations of camphor principally with the view of allaying the burning heat in acute cases of eczema, I believe them to be equally serviceable in many cases for the purpose of moderating the itching in chronic ones. For this purpose one or other of the prescriptions to be found at page 69 may be employed, or the ordinary camphorated oil or camphor ointment, which may be rubbed pretty firmly into the eruption night and morning, and when the parts are itchy.

* R Cyanidi Potassi, gr. vj.
 Cerati Galeni (Paris Codex), ʒj.
 Cochinillini, gr. j. M.

Sig. Rub a little firmly over the parts which are itchy, but let none of the ointment remain undissolved upon the skin.

CHAPTER IX.

Tarry preparations are of the greatest value as local applications in the treatment of eczema, though they are of no use whatever when administered internally. They have long been in vogue in this country, but have too frequently been used in a routine way, and without discrimination. The fact must therefore be kept in view that they are chiefly of use in the declining stages of eczema, when the infiltration and itching are moderated.

Common tar (*Pix liquida*) is the application most frequently used in Dispensary practice on account of its cheapness; but in private practice more elegant preparations, such as the oleum rusci or oleum cadini (oil of cade), may be employed. The latter, which is the product of the dry distillation of the wood of the *Juniperus Oxycedrus*, is manufactured at Aix-la-chapelle, and one must be sure that it is got there, else a liquid prepared from common tar may be supplied in its stead.

Whichever of these preparations is selected should be rubbed firmly over the eruption by means of a piece of flannel, and allowed to dry upon it. It should be applied twice daily, and washed off as well as possible with soft soap, or, amongst the higher classes, with petroleum soap, before each reapplication.

Several kinds of soap containing tar and oil of cade,

under the name of tar and cade soaps (the latter should be obtained from Aix-la-Chapelle, but is very expensive—3s. 6d. a cake), are frequently employed instead of these preparations in their pure state. They should be used like common soap—but rubbed more firmly over the parts—and in many cases it will be found of advantage to allow the soap to dry upon the eruption.

I rarely employ tar alone, however, in the treatment of eczema, but usually combine it with one of the potash solutions, in which case it may be applied before the infiltration has subsided; for while I stated that tar was most useful in the declining stages of eczema, I merely meant that it should not entirely take the place of the potash or zinc solutions while the infiltration was considerable. A most admirable preparation, one of Hebra's, and which is used to a great extent at the Dispensary for Skin Diseases, Glasgow, under the name of "*tinctura saponis viridis cum pice*," and with the most charming effect, is a mixture of equal parts of common tar, methylated spirit, and soft soap, which should be applied exactly in the same way, and as frequently as the simple solution of soft soap.

The following case, reported by my assistant, Mr. Arthur Jamieson, many similar to which are treated daily at the Dispensary, illustrates the beneficial effects of this mixture:—

"William S., aged 45, labourer, came to the Dispensary for Skin Diseases on Nov. 10, 1862. He was affected with '*eczema impetiginodes*' of both ears and the

whole of the face, with the exception of the nose. He complained of intense itching, with considerable heat of the parts. The exudation, of a purulent nature, was abundant, and in many parts had concreted, forming large crusts which almost entirely covered the whole of his face. The infiltration of the skin was great; his general health pretty good.

"He was ordered a calomel and scammony purge, and a mixture of oxide of zinc and camphor, in the proportion of gr. xx. of the latter to ℥j. of the former, was applied night and morning to the eruption after the removal of the scabs.

"13th.—No improvement; ordered the *tinctura saponis viridis cum pice*.

"24th.—Eruption completely gone."

In private practice, where expense is less an object than the elegance of the preparation, oil of cade may be substituted for common tar, and rectified spirit for methylated spirit, while a little oil of lavender may be added to conceal in part the disagreeable odour;* or, instead of using soft soap at all, a solution of potassa fusa may be added to the mixture, the amount of the caustic potash depending upon the amount of infiltration of the skin.

* R	Saponis Mollis,	
	Spt. Rectificati,	
	Olei Cadini, āā ℥j.	
	Olei Lavandulæ. ʒjss.	M.

Sig. Rub a little firmly over the eruption night and morning, and wash it off before each reapplication.

The preparations of mercury and sulphur, justly esteemed in the treatment of eczema, are most beneficial when the eruption is verging upon a cure, when the infiltration and exudation are gone, and the itching moderated.

Of the mercurials, citrine ointment is my favourite application, though the red and white precipitate ointments are perhaps equally useful, or the "*Unguentum hydrargyri iodidi*" of the London Pharmacopœia. These may be used of full strength or diluted with lard, and, if it is indicated, a few grains of cyanide of potassium may be added to allay the itching. If a lotion is preferred, from one to four grains of the bichloride of mercury may be dissolved with the aid of a little alcohol and mixed with an ounce of rose-water, while a little dilute hydrocyanic acid may be added if necessary, the solution being rubbed into the part two or three times daily. In using mercurial preparations locally, one must always bear in mind the possibility of their being absorbed in sufficient quantity to produce salivation; hence care must be taken in anointing an extensive surface, and the patient should be warned to discontinue the application if the gums become tender.

It was only the other day that I ordered a lotion of bichloride of mercury (gr. ij. to the ℥j. of water) to be applied to the nose of a lady, and in three days, to my astonishment, salivation had occurred. On the other hand, I have repeatedly ordered stronger lotions to be applied to extensive surfaces for weeks without the

occurrence of the slightest tendency to salivation, thus showing the peculiarities of different constitutions.

Of the preparations of sulphur, the common sulphur ointment, of full strength or diluted, and with or without the addition of cyanide of potassium, forms a very useful application. In some cases a little bicarbonate of potash may be added with advantage.* A drachm of sulphur mixed with an ounce of alcohol forms a capital lotion, but the patient must be told to shake the bottle before pouring out the liquid, as the sulphur falls to the bottom. This should be rubbed firmly over the part, night and morning, and allowed to dry upon it. If the patient is drinking sulphur waters at Moffat, Harrogate, or elsewhere, and especially if the rash is on the decline, he may combine their external use with their internal administration in the shape of warm baths.

When an ointment is employed in the treatment of eczema, full directions must be given as to the manner of applying it. A very small quantity should be melted on the point of the finger, and rubbed firmly into the affected part, and none of it should be allowed to lie undissolved upon the skin, nor, in most instances, should its colour be perceptible after its application; the surface should merely have the appearance of having been

* R Cyanidi Potassii, gr. v.
 Sulphuris,
 Bicarbonatis Potassæ, āā ʒss.
 Cochinillini, gr. i.
 Axungię, ad ʒj. M.

recently moistened with pure water. The part should always be cleaned with soap and water before reapplying the ointment; for if layer after layer be smeared upon the skin, it becomes rancid, acts as an irritant, and is calculated rather to be prejudicial than otherwise.

Astringents are of use in some cases of eczema, such as the sulphate of zinc or copper in proportions varying from three to twenty grains in an ounce of rose-water, or the solution of the diacetate of lead, diluted with distilled water; but I rarely have occasion to use them, and I think them inferior to the remedies previously described.

For the purpose of curing a very mild, or preventing a threatened attack of eczema, or obviating the occurrence of an immediate relapse, the skin may be washed occasionally with soft soap and water. In private practice, the use of Hendrie's "Dispensary Petroleum Soap," may be recommended. It is sold at sixpence per cake, and is one of the most delightfully perfumed soaps with which I am acquainted.

The following case of eczema erythematodes is of value, as illustrating many of the points of treatment to which I have adverted when the eruption covers an extensive surface:—

"A gentleman from the West of Scotland, aged about 40, consulted me on November 9, 1861, about an eczematous eruption of great severity and of many weeks' duration. (He had one previous attack, which lasted three years.) The parts affected were the neck, lower part of the abdomen, inner aspects of the thighs,

and the arms and legs, especially the flexor surfaces of the elbows and knees. The eruption was bright red, and presented an erythematous surface, neither vesicles, pustules, nor papules being visible. There was no exudation from the abdomen or extremities. The skin of the neck, on the other hand, was much infiltrated, and from it serum exuded in abundance. The itching was severe. He was robust, without being corpulent, and, with the exception of the eruption, was in perfectly good health. He was ordered to rub the inflamed parts firmly morning and evening with a piece of flannel dipped in a solution of soft soap, with the addition of a few drops of dilute hydrocyanic acid.* Cold water was to be frequently dashed over the parts, five drops of Fowler's solution taken thrice daily after food, and a farinaceous diet was recommended.

"*November 12.*—No change. Local application omitted, being too weak. The whole eruption was painted with a solution of potassa fusa, (℥ss. to the ℥j. of water), which was washed off with cold water whenever the smarting became very severe. This was followed by the exudation of a considerable quantity of serum, especially from the neck. The patient was ordered to repeat this every two or three days, oftener or seldomer according to the severity of the application and the effect produced. The

* R Acidi Hydrocyanici, dil., ℥ xl.
 Saponis Viridis, ℥ iss.
 Aquæ, ℥ iij.
 Olei Rosmarini, ʒj.

cold shower-bath was to be used twice daily, and the Fowler's solution to be continued.

"In a letter, dated November 21, I was informed that the infiltration had quite disappeared from the arms, legs, and abdomen, and only some redness and itching remained. The infiltration, exudation, and itching of neck were much moderated. He was ordered to continue the potassa fusa solution to the neck, and a mixture of oil of cade, soft soap, water, and dilute hydrocyanic acid, was to be rubbed firmly over the other parts night and morning.* The Fowler's solution, which agreed, was to be increased to seven and a half drops thrice daily. The bowels and kidneys being torpid, a teaspoonful of a powder containing sulphur, magnesia, and bitartrate of potash, was to be taken at bedtime.

"On December 6 patient stated:—'Since I last wrote, the complaint spread down the legs to the ankles. I have thus been affected from the ear to the foot, first and last. The strong application (potassa fusa, ℥ss., aquæ, ℥j.) checked the inflammation, and no exudation took place.' The previous eruption he stated to be rapidly disappearing under the influence of the local applications, although the itching was considerable at times.

* R Acidi Hydrocyanici, dil., ℥xl.
 Olei Cadini, ℥j.
 Saponis Viridis, ℥ij.
 Olei Rosmarini, ℥iss.
 Aquæ, ad ℥v. M.

"On December 30, 1861, only a little roughness and very slight occasional itching of the skin remained. An ointment containing cyanide of potassium, benzoated oxide of zinc ointment, and citrine ointment, was to be applied night and morning.*

"On January 9, 1862, the patient came to see me. The eruption was gone, and there was only a feeling as if the skin was not so elastic as natural. The local treatment was omitted, the dose of the Fowler's solution diminished to five drops thrice daily, and the purgative powder was only to be taken to relieve constipation.

"*January 1, 1863.*—No return of the eruption. Treatment omitted ten months ago."

There can be no doubt that the local treatment was the most effectual in this case.

When the eczematous eruption occupies a limited extent of surface, it usually requires to be attacked by strong local applications, while it is not, as a rule, so much under the influence of internal medicine as when it covers a large area. In such cases, strong solutions of potassa fusa or chloride of zinc, or even these caustics in the solid form, may be employed locally in the manner and with the precautions previously described, and often with benefit; but they must be omitted whenever the infiltration of the skin is removed.

* R Cyanidi Potassii, gr. xii.
 Unguenti Oxydi Zinci Benzoati.
 Unguenti Citrini, āā. ʒj. M.

Cauterisation with solid nitrate of silver may sometimes be resorted to instead of the above, or the tincture of iodine painted over the part night and morning, and a poultice of bread and hot water applied about once a week to remove the red skin which forms a covering to the eruption, and prevents the new layers of iodine from coming in contact with the disease itself. But of all the local means for the removal of limited eczematous eruptions, none are equal to blistering them. This may be done by means of a solution of bichloride of mercury (ʒj. to the ʒj. of alcohol), the fluid being painted over the eruption, and allowed to dry upon it. The action of the mercurial is, in this case, almost entirely local, and I have never witnessed any effect upon the system at large from its application.

The best blistering agent, however, is the glacial acetum cantharidis—that is, acetum cantharidis prepared with glacial acetic acid—the ordinary solution of the Pharmacopœia being too weak. (b) It should be made in small quantities at a time, and kept in a good stoppered bottle, the stopper being removed for as short a time as possible and, when not in use, covered with leather, otherwise its strength soon diminishes, and much annoyance is thereby occasioned. A little of this solution should be taken up by means of a paint-brush, and painted firmly over the part till it becomes perfectly white. If the fluid is of full strength, and the skin thin, as on the face, it usually blisters it at once; but if the opposite holds, and especially if the head or palms of the

hands are to be blistered, it may require to be painted over them for several minutes. After the skin is *thoroughly whitened*, a hot poultice may be applied, but the skin rarely "rises" so completely as after a common blistering plaster. One application is often sufficient to remove the eruption; but, if necessary, it may be repeated weekly, the crust produced by the previous eruption being softened with oil and removed before each reapplication.

A couple of months ago a gentleman, aged about 35, and otherwise in perfect health, consulted me with regard to an eczematous eruption on the head of twelve years' duration, for which he had been repeatedly shaved, and had consulted many physicians of eminence. Tar had been applied to the scalp systematically for some time, and every conceivable ointment had been used, but without avail. After his hair was removed, I found that the disease corresponded to the form which I have described under the name of *eczema squamosum*: it covered the whole head, and, as usually happens in these obstinate cases, was accurately limited to the hairy parts. The scales on the surface were numerous, the itching severe, and on the crown, front, and sides of the head, the infiltration and redness of the skin were great. I blistered these parts with glacial acetumcantharidis—the fluid requiring to be painted on for some minutes, owing to the thickness of the skin—and ordered the rest of the scalp, which was less severely affected, to be painted with tincture of iodine morning and evening. In a fort-

night the iodine was omitted; and when the crusts and scales produced by the iodine and the blistering fluid were removed, the scalp appeared perfectly healthy, and without a vestige of the previous eruption. To consolidate the cure, however, tincture of iodine was painted over the whole head night and morning for a fortnight, and when the red skin was removed, the scalp looked remarkably well, there being not even the vestige of a scale, which can rarely be said even of the head of a healthy person. No other treatment was resorted to, and the gentleman has since been in America. In the interval his hair grew in greater force than ever, and he is delighted to be rid of his old and indefatigable enemy.

Many cases such as these might be mentioned, but I shall just refer to one more, which many of my students had an opportunity of seeing:—"A woman, pretty well advanced in years, came to the Dispensary a few months ago, to get advice about an eczematous eruption of old standing, which covered the whole of the palmar surface of each hand. She had likewise a tendency to eczema of the leg, which was removed by means of the '*tinctura saponis viridis cum pice*,' a preparation previously referred to. It is to the hands, however, I wish to refer. The eruption here assumed the form of eczema rimosum, the fissures being very numerous and deep, and the infiltration of the skin great. Itching was mingled with the pain, but the latter, on account of the fissures, predominated. Owing to the pain and stiffness, the hands were kept constantly in a semi-closed position,

and she was unable to use them. I blistered each hand with the glacial acetum cantharidis, which had a marvellous effect. The eruption disappeared completely, and the patient returned with joy depicted in her countenance, and opened and closed her hands with perfect facility, not unmingled with pride."

(a) "Medicines: their Uses and Mode of Administration," by J. Moore Neligan, M.D. Fourth Edition, p. 455. Dublin.

(b) This solution is made at the New Apothecaries' Company, 57 Glassford Street, and at Frazer and Green's, 113 Buchanan Street, and 305 Sauchiehall Street, Glasgow.

CHAPTER X.

FROM the treatment of eczematous eruptions occurring in limited patches, I pass naturally to the consideration of the last division of the subject, the—

Local Varieties of Eczema; but it must be observed at the outset that the remarks I am about to make are to be taken in connection with what I have already stated, as much needless repetition may thus be avoided.

While eczema may be observed upon any part of the cutaneous envelope, and indeed may affect almost the whole of it at one time, there are certain localities which it seizes upon in preference to others, and to which it is often limited. These are the head, hairy portions of the face, lips, edges of the eyelids, nostrils, external auditory passages and ears, hands, feet, legs, genitals, anus, umbilicus, and those parts of the skin which are naturally in contact with one another.

Eczema of the Head (eczema capitis, impetigo capitis) occurs most frequently in the pustular form, especially in the case of children, whose heads are attacked with remarkable frequency. When this part is affected, the eruption has a tendency to chronicity, particularly if the treatment is not energetically and thoroughly carried into effect. For it is more difficult to keep the surface clean than when the non-hairy parts are invaded, owing

to the hairs being glued together by the exudation, and to the crusts being entangled in them and difficult of removal. For this reason the patient often allows them to remain for weeks, months, nay, even years upon the head, and when advice is at last obtained, the whole scalp is not unfrequently found to be concealed from view. In this way, collections of pus are often formed between the crusts and the scalp, owing to confinement of successive exudations, which do infinite harm. Besides, when hard crusts are allowed to remain on the head for a lengthened period of time, they press upon the hair follicles, and lead to their obliteration; whereas, when the eruption is properly treated from the first, there should be no permanent loss of hair. When the disease is neglected in the manner just indicated, the exudation becomes decomposed, lice are attracted to the part, and are often detected wallowing in the mire in thousands, while their nits (eggs) adhere, by means of sheaths, with great tenacity to the hairs, and in countless numbers. But while lice often occur as complications of an eczematous eruption, we must be alive to the fact that these insects sometimes attack the head of a healthy person, in whom they excite a sensation of itching. This causes the patient to scratch the part, and an eczematous eruption may thereby be induced. The lice on the head are thus the exciting cause of eczema in some cases, its result in others.

Little subcutaneous abscesses are sometimes met with on the head in addition to the collections of matter

between the scalp and the crusts; and enlargement of the neighbouring glands, especially those on the back of the neck and over the mastoid processes, occur in all aggravated chronic cases. These enlargements are due to the irritation set up by the adjacent eruption, and must on no account be looked upon as indicative of a strumous taint, though of course a smaller amount of irritation is capable of causing their enlargement in scrofulous children.

The *diagnosis* of eczema capitis is sometimes difficult to the unaccustomed eye, and I have accordingly arranged in a tabular form the points to be attended to as distinguishing it from syphilitic eczema capitis, seborrhœa capitis, psoriasis capitis, and herpes tonsurans:—

Table showing the Points which Distinguish Eczema Capitis from Syphilitic Eczema Capitis, Seborrhœa Capitis, Psoriasis Capitis, and Herpes Tonsurans:—

ECZEMA CAPITIS.	SYPHILITIC ECZEMA CAPITIS.
1. Occurs oftenest in children.	1. Occurs usually in adults.
2. Often attacks the whole scalp.	2. Usually occurs in small patches.
3. Exhibits superficial ulcers only.	3. Exhibits deep ulcers, with perpendicular edges and unhealthy bases.
4. Occurs in persons in whom there is no history of primary syphilis, except as a coincidence.	4. Occurs in persons in whom there is usually a history of primary syphilis.
5. Does not occur in connection with symptoms of syphilis, except as a coincidence.	5. Occurs in connection with other signs of syphilis, <i>e.g.</i> , alopecia, sore-throat, other syphilitic eruptions on the skin, glandular enlargements, rheumatic pains, &c.

For further particulars, see the general diagnosis of eczema from syphilitic eruptions.

ECZEMA CAPITIS.

1. Exhibits crusts, which are brittle, are often very thick, and are composed of pus, granular matter, and epithelium.

2. Is excessively itchy; and, after removing the crusts, the scalp is infiltrated, red, often excoriated, and exudes serum or pus.

ECZEMA CAPITIS.

1. Occurs oftenest in those whose health is deteriorated, or who are scrofulous.

2. Is usually very itchy.

3. Exhibits exudation on the surface of the skin.

4. Exhibits thick yellowish, usually moist crusts.

5. Occurs often in connection with eczema of other parts, as of the ears, &c.

ECZEMA CAPITIS.

1. Patches not circular, unless the hair has been cut short in a circular manner with scissors.

2. Hairs healthy (though they may fall out here and there), and exhibit no parasite.

3. Itching usually excessive.

4. Eczematous eruptions often on other parts of the body.

SEBORRHOEA CAPITIS.

1. Exhibits crusts, which can be kneaded into a ball, are usually thin, have an oily feel, and are composed principally of sebaceous matter and epithelium.

2. Is not excessively itchy; and, after removing the crusts, the scalp is not infiltrated, red, or excoriated; exudes neither serum nor pus, but is smooth and oily.

PSORIASIS CAPITIS.

1. Occurs oftenest in those who are apparently in perfect health, and very rarely in those who are scrofulous.

2. Is usually not very itchy.

3. Is a perfectly dry eruption.

4. Exhibits usually thin, white, dry scales.

5. Occurs almost invariably in connection with psoriasis of other parts, especially of elbows and knees, where the diagnosis is easy.

HERPES TONSURANS

(*Ringworm of the Head*).

1. Patches circular.

2. Hairs brittle, twisted, broken off close to the scalp, thickened and white; loaded with the parasite (*trichophyton tonsurans*).

3. Itching not usually severe.

4. Herpes circinatus (ringworm of the body) often on the body.

5. Not contagious.

5. Contagious, especially to children, and often other members of the family exhibit ringworm of the head or body.

But cases are often met with in which ringworm of the head is complicated with eczema of the head. The latter is then the more prominent of the two, and the ringworm is often overlooked. In these cases the diagnosis is arrived at by detecting the white thickened stumps of hairs loaded with the parasite. It is therefore well, in every case of eczema, to examine the hairs carefully, with the eye at least. The history of the case, the way the eruption commenced (in circular dry patches), and the signs of the contagious nature of ringworm, assist the diagnosis. The following case is a good example of the complication of ringworm of the head with eczema:—

“Richard B., aged 8, was admitted at the Dispensary for Skin Diseases, November 25, 1861. Almost the whole of his head was covered with thick, yellowish, eczematous crusts, and the backs of his ears were infiltrated, exuding, and itchy. Little patches of alopecia existed on the scalp, and, on examining the head attentively, little fragments of hairs were detected here and there, which were brittle, broke on attempting to extract them entire, and were loaded with the spores of the *trichophyton tonsurans*. The disease commenced as a small circular patch on the crown of the head, having, according to the statements of the mother of the patient, all the characters of ringworm.”

Mr. Jabez Hogg, who professes to find parasitic growths in nearly all kinds of chronic skin diseases, might have made use of this case in support of his views, had it come under his observation; whereas a careful examination, and an inquiry into the history of the case, showed it to be a case of ringworm, complicated, in its later stages, with eczema.

Alopecia areata (circular patches of baldness) ought never to be mistaken for eczema of the head, and the disease only requires to be kept in view in order to prevent an error in diagnosis.

Favus is, however, often difficult of distinction from eczema capitis. In cases of favus "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 hair; 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-develop itself, and its nature is at once discovered." (a)

In the *treatment* of eczema of the head, the removal of the crusts is often difficult, and the remedial applications cannot be so thoroughly applied to the diseased surface. If the eruption is at all extensive or severe, and if it occurs in children, I am in the habit of ordering the hair to be cut as short as possible, and I always insist upon this, if as happens too often, particularly amongst the poor, the disease is complicated with lice. The crusts can then be separated with greater facility, and the morbid surface more fully exposed to view. In adults, and especially in females, the removal of the hair must often be dispensed with, and the cure is consequently much retarded.

It is only in chronic cases occurring in adults, and rebellious to milder treatment, that shaving of the head, and the application of iodine and blisters (see local treatment of eczema occupying a limited extent of surface, pp. 86-90), is to be recommended; for, in the ordinary run of cases, the milder treatment, before fully discussed, is usually effectual. In very obstinate chronic cases, which resist both internal and external remedies, although very few indeed do not yield to blisters, epilation may be tried, though this is rarely necessary. (b) If epilation is recommended, and it is only to be carried into

effect as a "*dernier-ressort*," a lotion of bichloride of mercury should at the same time be used, or one of the mercurial ointments previously referred to. (See page 81.)

(a) "The Parasitic Affections of the Skin," by T. McCall Anderson, M.D. London: Churchill and Sons. 1861.

(b) For the mode of extracting the hairs, see my work on the "Parasitic Affections of the Skin," p. 34. London: Churchill and Sons. 1861.

CHAPTER XI.

Eczema of the Hairy Portions of the Face (*Eczema pilare faciei*), is an exceedingly common and a very annoying affection, owing to the disfigurement which it occasions, the burning heat which accompanies it, and the difficulty and pain of shaving. The only word in English dermatological works which is intended to denote it, is "impetigo menti;" but the disease is by no means confined to the chin, so that this name is a too restricted one. I have therefore called it "*Eczema pilare faciei*," which is more correct, though perhaps not so euphonious.

The eruption commences by the formation of pustules, each of which is situated at the orifice of a hair follicle; for it will be noticed that a hair passes through the centre of each pustule. It is curious, though true, that eczema almost always assumes the pustular form in this situation in adult males—an observation which coincides with what I stated previously, that the pustular form of eczema (impetigo) is much more frequently observed on hairy parts of the body.

These pustules dry up into small yellow crusts, which are difficult of removal, owing to their adhesion to the hairs as well as to the skin. When many pustules form at the orifices of neighbouring follicles, they have a tendency to run together; and on drying up, large

irregular yellow crusts are left. If these are not removed, successive exudations on the surface of the skin are confined by them, and lead to excoriations, and, owing to their continued pressure, to obliteration of the hair follicles, and permanent alopecia of the affected parts. The skin on which the pustules are developed assumes a dusky red tint, and becomes gradually more and more thickened and infiltrated. The patient sometimes complains of itching, oftener of pain, or burning heat—a sensation which is principally experienced during the formation of a crop of pustules. The disease is often kept up for months, or even years, owing to the occurrence of successive crops of pustules.

The causes which specially operate in the production of this form of eczema are, irritating discharges from the nose and mouth, and the irritation of the razor, especially when that instrument is blunt. Indeed, the disease not unfrequently disappears spontaneously when these causes are no longer in operation, unless the predisposition to eczema is very strong, or the eruption has lasted a long time.

The diseases with which it may be confounded, are *acne sycosiformis* and *sycosis parasitica*. In *acne sycosiformis* the eruption partakes more of the tubercular than of the pustular form, and the eruption of acne is detected on the non-hairy parts of the face, and often also between the shoulders and on the front of the chest. Indeed, *acne sycosiformis* (so named from the resemblance of the eruption to *sycosis parasitica*) is merely

acne indurata, implicating the hairy instead of the non-hairy parts of the face. Strictly speaking, the form of eczema at present under consideration has nearly as much right to be ranked with acne as with eczema, in which case acne sycosiformis would be regarded as an advanced stage of eczema of the hairy parts of the face. The treatment of the two affections is nearly the same, so that it is unnecessary to insist further upon the diagnosis.

The disease which is oftenest confounded with this form of eczema is sycosis parasitica, although the differences are generally very marked. These are shown in the following table:—

ECZEMA PILARE FACIEI.

1. Very common in this country.
2. A pustular disease only.
3. No trace of herpes circinatus either on the affected parts or in other localities.
4. Not contagious.
5. Hairs healthy, and adhere firmly, so that epilation causes pain, unless much suppuration has occurred at their roots.
6. No parasite to be detected.

SYCOSIS PARASITICA

(*Ringworm of the Beard*).

1. Very rare in this country.
2. Pustules, tubercles, and large fleshy indurations detected when disease fully established.
3. Rings of herpes circinatus (ringworm of body) detected amongst the hairs, and often round the front of the neck, or on the wrists, arms, or other parts of the body.
4. Contagious, and often history of contagion.
5. Hairs brittle, broken, and twisted; have lost their natural glistening appearance, are thick and white, can be extracted with perfect ease and without pain, and generally come away without their bulbs.
6. Fungus (*trichophyton tonsurans*) detected in the hairs and scales.

In the cure of this form of eczema, if the means already indicated fail, the patient should be directed to stop shaving, or if he has a beard, the hair should be cut short. All the hairs proceeding from the affected parts should then be extracted, after which a stimulating and alterative ointment, such as citrine ointment, should be rubbed firmly over the morbid surface night and morning. This treatment often acts like a charm, and I have cured many old standing cases in a couple of weeks by means of it. While it sometimes fails to effect a complete cure, it is always, as far as my experience goes, productive of temporary benefit. After the parts have been once epilated, if new pustules appear, the hair passing through the middle of each must at once be extracted, and the use of the ointment continued.

The following case, and I could cite many such, illustrates the benefit of this mode of treatment. I have selected it because it shows the value of epilation as compared with other treatment:—

“Mr. M., aged about 35, consulted me on April 24, 1861, with regard to an eruption on the upper lip, immediately beneath the nostrils. The patch was about an inch square, the skin red and infiltrated, and numerous pustules and yellow crusts were situated at the orifices of the hair follicles. The disease was kept up by the formation of successive crops of pustules. He stated that he had frequently discharge from the nostrils, which he thought irritated the skin of the upper lip. He

had been taking Donovan's solution for some time when I saw him, and he said with benefit, and it was therefore continued.

"A week afterwards, the eruption being in no way altered, Fowler's solution, at first in ten, later in fifteen drop doses (thrice daily), was administered for some weeks, and an ointment of two drachms of citrine ointment, mixed with six of linimentum calcis, was rubbed firmly into the roots of the hairs night and morning. The arsenic, in one form or another, having been continued for a couple of months, and pushed till it produced derangement of the digestion, and no benefit accruing from its employment, was omitted, and the morbid surface was touched gently with solid potassa fusa after the removal of the crusts.

"A week afterwards (May 11, 1861), great improvement was observed. The infiltration and redness of the skin were much less, but still a few pustules continued to form at the edges of the patch.

"I now lost sight of the patient till January 23, 1862, when I found the eruption pretty much in the same state as when I first saw him, it having never disappeared entirely. I at once removed the crusts, extracted all the hairs, and ordered citrine ointment to be used night and morning.

"Four days later (January 27, 1862), the infiltration and redness of the skin were nearly gone, and no new pustules had appeared. He was ordered to continue the use of the ointment a little longer, and if any new

pustules appeared, to pull out the hairs which proceeded through the centres of them."

About two months after this (March 21), I saw this gentleman by accident, when he informed me that since the epilation the disease had never reappeared, and I could discover no trace of the previous eruption. He wore a magnificent moustache—epilation, as most are aware, having the effect of making the hair grow more luxuriantly than ever, owing to the stimulus which that operation gives to the circulation of the part.

Those who are alive to the benefits of a luxurious pair of whiskers, and who have not yet succeeded in the attainment of their wishes, may perhaps be inclined to draw a practical lesson from the results of epilation in the case of the gentleman just alluded to.

In cases where all local treatment fails, including epilation, it is necessary to resort to a thorough course of Fowler's solution, by which means alone I succeeded the other day in obtaining a complete cure of one of the most aggravated cases I ever saw.

Eczema of the Lips (*Eczema labiorum*) is by no means of rare occurrence, and may coincide with a similar eruption on other parts, though the former are often affected alone. The eruption may be confined to one lip, or both may be implicated, and they may be the seat of any of the forms of eczema previously described. They are often greatly swelled, the serum being diffused through the cellular tissue, the meshes of which are very loose. The oral aperture is often spasmodically con-

tracted, especially if fissures complicate the eruption, as they often do, particularly at the angles of the mouth and the centre of the lower lip.

Hebra has observed eczema of the lips to be frequently associated with eczema of the anus, and he once had a patient who was affected alternately with eczema of the anus and lips.

The two diseases which are most apt to be mistaken for eczema of the lips are herpes labialis and syphilitic eruptions of these parts. But one will be little likely to fall into error, if the points to which I referred in speaking of the diagnosis of eczema in general be remembered. (See pp. 37 and 41.) There is just one additional circumstance, however, with which it is necessary to be familiar in connection with syphilitic affections of the lips, namely, that the eruption rarely affects the whole of even one lip, but has a marked tendency to concentrate itself at the angles of the mouth, where it is often obstinate till the patient is brought under the influence of mercury, when it, "vanquished, quits the field."

Care must be taken in the use of strong solutions of poisonous preparations, such as those of corrosive sublimate, in the treatment of this affection; for it is quite possible for the patient to swallow a sufficiency of the mixture to induce serious symptoms. I have nothing to add with regard to treatment, further than to refer particularly to my remarks upon the means adopted for the removal of limited eczematous eruptions.

The following case of eczema of the lips is a good illustration of the eruption in question :—

“A gentleman, aged about 35, consulted me on April 15, 1861, about an eruption of eczema attacking both lips, and for the second time. A small infiltrated, exuding, and itchy patch existed on the right cheek, near the angle of the mouth, and occasionally vesicles were detected on it. The lips were slightly infiltrated, thickened, red, and itchy; the epithelium was constantly peeling off them, so that they were very rough, and sometimes a little serous fluid exuded, while fissures had formed here and there, but particularly at the angles of the mouth. His general health was excellent. Fowler’s and Donovan’s solutions were successively administered without effect, and the disease was finally and rapidly cured by applying ‘aqua potassa’ to the parts night and morning, and washing them frequently with cold water.”

Eczema of the Edges of the Eyelids (Eczema tarsi, Ophthalmia tarsi, Tinea ciliarum) is exceedingly common, especially in scrofulous children, and in them often associated with conjunctivitis and strumous ophthalmia. The affection is neither more nor less than a pustular eczema (impetigo), attacking the edges of the lids, although it does not seem to be generally recognized as such by ophthalmic surgeons; for it commences by the formation of pustules at the orifices of the hair-follicles, which concrete into scabs, beneath which small ulcers are detected, and, when the disease is fully developed the usual symptoms of eczema, itching, infiltration,

exudation, &c., are observed. The exudation from the morbid surface, mingled with the altered secretion from the Meibomian follicles, glues the edges of the eyelids together, especially at night, unless proper precautions are taken. Lachrymation is likewise a common symptom, and the tears falling on the cheek not unfrequently irritate the skin, and give rise to an eczematous eruption.

If improperly treated or neglected, as occurs too often, the pressure of the crusts, the confinement of the discharge, and the formation and extension of ulcers, lead ultimately to obliteration of the Meibomian glands and hair-follicles, after which a perfect cure is of course impossible. Amongst the train of evils may also be mentioned eversion or inversion of the lids; and if the eyelashes are not gone, owing to obliteration of their follicles, the hairs are apt to assume abnormal directions.

With regard to the local treatment (for the constitutional, see the treatment of eczema generally, p. 49), the extraction of the eyelashes is always followed by improvement. This operation is far too often omitted, for, in my opinion, it should be uniformly carried into effect in bad cases, and repeated if new pustules form at the orifices of the follicles exactly in the same way as in the treatment of eczema of the hairy parts of the face. (See treatment of eczema of hairy portions of the face, p. 103.) In addition to this, if the parts are much infiltrated, I am in the habit, after the removal of all crusts, of applying a solution of potassa fusa (usually a solution of ten grains in an

ounce of water) to the edges of the lids, an operation which should not be intrusted to the patient, at first at all events. A small brush must be used, and very little of the solution taken up by it, so as to make it moist, but no more. The eyelid must then be carefully dried, else the application spreads, everted so as to remove it from the eyeball, and the solution painted along its edge. A large brush soaked in cold water should be in readiness, to stop the action when desired. This application may be repeated every day till the infiltration, exudation, and itching subside, after which citrine ointment may be relied upon for completing the cure. In slight cases the eruption often yields to the use of citrine ointment alone, coupled with cleanliness. During the treatment of eczema tarsi a little ointment (diluted citrine ointment, for example) should be applied to the edges of the lids at night, so as to prevent their adhesion, but it must always be washed off in the morning. If, notwithstanding the anointing of the lids at night, they are adherent in the morning, they must on no account be torn asunder, but the agglutinated matter must be softened. Towards this end the instructions of Mackenzie may be followed with advantage. "A teaspoonful of milk, with a bit of fresh butter melted in it, may be employed for smearing the lids, rubbing it with the finger gently along the agglutinated eyelashes. A piece of soft sponge, wrung out of hot water, is then to be held upon the eyelids for some minutes, after which the

patient will find the eyelids yield without pain to the least effort he makes to open them. With the fingernail the whole of the matter is immediately to be removed." (a)

If there is any inflammation of the conjunctiva, Mackenzie's excellent wash of the bichloride of mercury* may be used with advantage, and is often sufficient when the conjunctivitis is slight. For the treatment of a more severe attack, as well as for that of the other complications of eczema tarsi, such as ectropium, entropium, trichiasis, ophthalmia scrofulosa, &c., I must refer the reader to special works on ophthalmic Surgery.

Eczema of the nostrils is not very common, except when it occurs by extension of the eruption inwards from the skin in the neighbourhood of the nose. There is no itching complained of in this affection, except at the point where the mucous membrane of the nostrils takes on the cutaneous character, the mucous membrane being, as a rule, unaffected by pruritus. The nose is often much increased in size. The secretion from the nostrils is likewise much augmented, becomes thick and

* R Hydrargyri Bichloridi, gr. j.
 Hydrochloratis Ammoniae, gr. vj.
 Cocci Cacti, gr. iss.
 Alcoholis, ʒj.

Tere simul, adde aquæ uncias sex, et cola per chartam.

Sig.—Pour out half a tablespoonful of this fluid, and mix it with as much boiling water in a tea-cup previously warmed. With a piece of old linen or soft sponge bathe the eyelids with the mixture for a few minutes, and then by leaning back the head, allow a little of it to flow in upon the eye. Repeat this thrice daily.

purulent, and concretes into crusts, so as to impair the nasal respiration and to cause the patient to sleep with the mouth open, and to snore.

On removing the crust, the mucous membrane is found to be thickened and congested, and ulcers form with considerable frequency. The patient feels the nose very much stuffed, and is thereby induced to remove the crusts which cover the ulceration. This has the effect of increasing the size of the sores, especially if the general health is not good. I know of two cases of eczema of the nostrils, however, in which the ulceration produced perforation of the cartilaginous septum, although the patients were both apparently in robust health. But I have never seen the bony septum attacked, and in neither of the above cases was there any external deformity.

The diagnosis of eczema of the nostrils from *lupus* is sometimes difficult, especially in those rare cases of eczema in which perforation of the septum occurs, for lupus not unfrequently commences its ravages by perforating the cartilaginous septum. But if the disease is lupoid, there is no itching at the orifices of the nostrils, and some of the characteristic papulæ of lupus are usually discovered on the skin of the nose or neighbourhood, which, when present, at once point to the nature of the perforation. In eczema of the nostrils, on the other hand, there is often an eczematous rash externally, or the history of a past cutaneous eczema. And lastly, while eczema often occurs in strumous

persons, lupus is almost always accompanied by other signs of struma, such as engorgement, or suppuration of the glands at the side of the neck, caries, &c.

Syphilitic affections of the nostrils may likewise be mistaken for eczema of these parts. But in the former there is no itching at the junction of the mucous membrane with the skin; there are often syphilitic eruptions on the skin, or other symptoms of syphilis, such as alopecia, sore-throat, glandular engorgements, rheumatic pains, &c.; there is often the history of a primary syphilitic sore; and, lastly, the affection yields to mercury.

I have very little to add with regard to treatment. Ointments containing mercury, as citrine ointment, are usually beneficial. Hebra recommends a strong solution of sulphate of zinc, which may therefore be tried in preference to solutions of potassa fusa. Others are in the habit of using nitrate of silver either in solution or in the solid form, and benefit frequently accrues therefrom. The patient must be warned most particularly not to tear away the crusts, but to soften them carefully with oil, and after they come away, to smear the ulcerated surface with a mildly stimulating and alterative ointment, such as that of white precipitate diluted with three or four parts of lard.

(a) "A Practical Treatise on the Diseases of the Eye," by W. Mackenzie, M.D. Fourth Edition, p. 145. London: Longman, Brown, Green, and Longmans.

CHAPTER XII.

Eczema of the external auditory passage (Eczema meatus) occurs on both sides simultaneously in the majority of cases, though sometimes only one ear is attacked. In most instances the auricles are implicated, the disease commencing on the skin of these parts and gradually extending inwards. Sometimes the auricles are affected alone, and, on the other hand, the eruption is not unfrequently limited to the meatus. As the latter class of cases is more frequently brought under the notice of the aural surgeon, the dermatologist is apt to have erroneous notions as to the frequency of the affection.

It may arise from the same causes which call forth eczema on other parts of the body, but the local causes specially operating are the introduction of pins, ear-picks, and acrid substances into the meatus. The patient sometimes complains of a feeling of fulness in the ear, but the itching is the most annoying symptom, to allay which pins or ear-picks are frequently introduced, so as to scratch the parts—the finger-nails, which are employed for a like purpose on other parts of the body being inadmissible. In this way the irritation is relieved for the moment, and the disease proportionately aggravated. The calibre of the meatus is narrowed,

often so much so that the membrane of the tympanum cannot be distinctly seen, the amount of the narrowing being dependent upon the amount of infiltration of its walls. There is generally exudation from the meatus at some stage of the disease, and the fluid which exudes is either milky or watery, and sometimes so excessive as almost to soak the pillow at night. If the ear is not frequently washed out, the exudation has a very bad odour. At other stages the meatus may be quite dry and scaly, and in connection with this condition I have frequently noticed the surface of the membrane of the tympanum to be dry and scaly also. Sometimes large quantities of epithelium are thrown off from the meatus, so as to block it up, and cerumen is sometimes mixed up with the epithelial mass. The secretion from the ceruminous glands is, however, for the most part arrested in this affection. The hearing power is often not much impaired, the amount of deafness depending upon the amount of infiltration of the walls of the canal, upon the quantity of epithelium and discharge accumulated in the meatus, and upon whether the drum and mucous membrane of the cavity of the tympanum are implicated or not. Sometimes the deafness is so great that the tick is only heard when the watch is close to the ear.

The cure is often tedious, as it is impossible to apply local remedies so well to the meatus as to the skin; and strong local applications must be used with caution on account of the delicate structures at the bottom of the meatus. The ear must first be carefully syringed, so as

to remove the exudation, and when the walls of the canal, instead of exuding, are scaly, a few drops of olive oil should be previously introduced, so as to soften the particles and facilitate their subsequent removal. The relief and improvement of hearing following upon the use of the syringe, is often so great as to astonish the patient who has allowed the serous exudation and particles of skin to collect in the ear for months. After all the *effete* matter has thus been removed, I frequently paint the walls of the meatus with solutions of potassa fusa (commencing usually with a solution of ten grains in an ounce of water, but the strength must be proportioned to the severity of the disease). A small paint-brush is dipped in the solution, and gently stripped, so that it does not contain too much fluid; then insinuated into the meatus for the extent of half an inch, and twisted round, so that the walls of the canal are entirely moistened by the fluid. This usually causes considerable smarting, which, however, subsides in a few minutes. If the action is very severe, it may be checked at once by the injection of tepid water, for which purpose I am in the habit, previous to the operation, of filling a syringe with it, and holding it in readiness for use, if required. If a strong solution is used (*e.g.*, ʒj. to ʒj.) we must be careful not to take up so much fluid with the brush that it drops upon the drum, as the applications which are appropriate to the walls of the canal cannot always be applied with impunity to the delicate structures at the bottom of the meatus. In cases where the

drum participates in the disease, as usually happens, a weak solution (*e.g.*, potassa fusa, gr. iij. to ℥j. of water) may be used as an injection night and morning, which is sufficiently strong to improve its diseased condition in most cases. A strong solution (℥j. to ℥j. of water) may usually be painted on the walls of the meatus every two or three days; but the more severe the affection, and the weaker the application, the oftener must it be repeated. In the intervals between the applications—which I never trust to the patient if the solution is strong—I direct him to syringe out the ear twice daily with tepid water, as before mentioned. The beneficial effects of this treatment are sometimes very marked; the hearing often improves after a single application, the uneasiness in the ear subsides, the meatus becomes wider, and a large quantity of serous fluid exudes.

The following case illustrates what I have been saying:—

“G. T., Esq., aged about forty-five, consulted me, January 10, 1862, for an affection of the ears of two years’ duration. He complained of tinnitus, uneasiness, and fulness in the ears, with severe itching, to allay which he was in the habit of using an ear-pick. Sometimes a profuse watery discharge, mingled with epithelial *débris*, came away from the ears; sometimes small scales only. He had latterly been troubled with deafness on the right side, the tick of the watch being heard at the distance of two inches and a quarter from the ear. An eczematous eruption was seen upon the concha; the

meatus was much narrowed, red, and scaly, and the membrana tympani dull and scaly, giving it a very peculiar aspect. On the left side the same symptoms existed, though in a less marked degree, but the hearing was good. The right membrane of the tympanum was relaxed and had fallen backwards somewhat, as the hearing immediately improved on forcing air into the cavity of the tympanum, and the drum was seen to move outwards. To remove this condition I touched the drum with a solution of nitrate of silver (gr. x. to ℥j. of water), and on the 14th the relaxation was nearly gone, and the tick of the watch was heard at the distance of a foot. I now painted each meatus with a solution of potassa fusa (℥j. to ℥j. of water) in the manner above described, after syringing out the canals thoroughly. This was repeated on the 16th, and again upon the 18th, when the tick of the watch was heard at the distance of a yard from the right ear; the hearing in the left continued good; the itching, sense of fulness, and tinnitus were gone; the meatuses were wider and more natural in appearance, and the drums not so scaly. This application was repeated a good many times, and the canals washed out with tepid water twice daily in the intervals, with the most beneficial effect." (a)

It will often be found that benefit accrues from the use of a solution of nitrate of silver in the proportion of half a drachm or a drachm to the ounce of water, which may be painted every day or two over the meatus, in the same way as the potassa fusa solutions. As an instance

of the good effects of this treatment, I may mention the case of a lady whom I saw lately in consultation with my friend Dr. J. B. Cowan. She had suffered for some time from an eczematous rash of each ear, which had extended to the meatus and membrana tympani. The eruption when I first saw it, was red, infiltrated, dry, and scaly; much itching was complained of. There was likewise a sense of fulness as well as of itching in each meatus, and the drums participated in the manner before indicated in the eruption. The tick was heard when the watch was at the distance of one inch from the right ear, but was only faintly audible when pressed *firmly* against the left. It was audible, though not very distinctly, on the temples. The ears were to be washed out night and morning with warm water, and each meatus to be painted every second day with a solution of nitrate of silver (℥ss. to the ℥j. of water). A mixture containing oil of cade, rectified spirit, and a few grains of potassa fusa,* was to be rubbed firmly over the external eruption night and morning, and to be washed off with petroleum soap and water before each reapplication.

This was on December 23, 1862. On January 6, 1863, the following was the report:—"Tick of the watch heard at the distance of eight inches from the ear

* R Potassæ Fusæ, gr. xv.
 Olei Cadini, ℥j.
 Alcoholis, ℥iss.
 Olei Citronellæ, ℥j. M.

on the right side, quarter of an inch on the left. Meatus more natural in appearance. External eruption nearly gone. Apply the lotion in the morning only, and at night rub a little citrine ointment over the parts. Paint each meatus with the nitrate of silver solution once every three days only."

On January 29, 1863, the external eruption had disappeared; each meatus and drum was comparatively healthy in appearance, all uneasiness was gone, and the watch was heard ticking at the distance of more than a yard from each ear. Dr. Cowan and I now recommended a course of Fowler's solution, to prevent a relapse if possible; the painting of each meatus once weekly with the solution; and the use of citrine ointment externally once daily. I have not seen nor heard of this lady since, but I doubt not that she continues well.

After the infiltration of the meatus has disappeared, much benefit is sometimes derived from painting the canal daily with a little melted citrine ointment, care being taken to use the syringe and warm water before each reapplication of the ointment. Leeches may sometimes be resorted to for the removal of congestion. Purgatives, like leeches, produce a temporary alleviation of the complaint only; astringent injections, though useful, are inferior to solutions of nitrate of silver and potassa fusa; blisters are principally of service in calling forth a counter discharge, if the eczematous exudation is very profuse, and the occurrence of

bad effects from its cessation is feared; and, in severe cases, such as the one I have just related, a carefully-regulated, long-continued course of arsenic may be given with advantage.

(a) See "Cases Illustrative of Diseases of the Ear." By T. McCall Anderson, M.D. No. II. *Glasgow Medical Journal*, April, 1862.

CHAPTER XIII.

ECZEMA often attacks *the hands* (Eczema manuum) and *the feet* (Eczema pedum), and is often limited to one or other of these parts. Sometimes one hand or foot is attacked, oftener both; but it is rare for both hands and feet to be implicated together, the other portions of the body being spared. The hands suffer alone much oftener than the feet, being exposed to the air, and to the action of local irritants. Hence cooks, bakers, grocers, bricklayers, smiths, &c., are very subject to the disease, their hands being exposed to great heat, or to the irritation of sugar, lime, particles of heated iron, &c.

Owing to the number of the joints, and the constant movement of the parts, fissures form with exceeding frequency in eczema of the hands and feet, but especially of the former. Indeed it is on the palms of the hands that one sees the most typical cases of the fissured variety of eczema (see description of eczema rimosum, page 21).

The hands and feet are often affected with eczema occurring in small, scattered, circumscribed patches, which are frequently very obstinate.

When the vesicular form of eczema attacks the soles or palms, but especially the former, the vesicles remain

long intact, owing to the thickness of the cuticle, and the serum, unable to escape externally, burrows beneath the skin. Many vesicles thus run together, and bullæ, often of large size, are occasionally formed. The eruption may then be mistaken for *pemphigus*; but, in the former, we are guided by the history of the formation of the bullæ by the confluence of vesicles, by the small number of the bullæ (usually only one or two), by their occurring only where the cuticle is thick and resisting, and by the detection of vesicles around the edges of the bullæ, and of a fully developed eczematous eruption in the neighbourhood.

To avoid falling into the error of mistaking eczema for *scabies*, my readers must bear in mind what I have already stated under the general diagnosis of eczema (see page 37); but I may call to recollection two very important points of diagnosis, namely, that in *scabies* we should be able to detect the furrows at least of the itch insect, if not the insect itself, and should inquire if there is any sign of the eruption being contagious; *scabies* being very contagious, eczema not at all.

Syphilitic eruptions on the palms of the hands and soles of the feet may be mistaken for eczema. I have already pointed out most of the symptoms which distinguish a syphilitic eruption from a non-syphilitic eczema (see page 41); but in addition, it may be remarked that a syphilitic eruption on the palm usually commences as a small spot near its centre, which gradually extends circumferentially, and heals in the centre so as to form at last a circle

of eruption enclosing healthy skin. The eruption has besides a coppery tint, is scaly, but neither moist nor itchy, and is removable by mercury and iodine alone; and it must be observed that this is often the only sign of syphilis which the patient exhibits at the time he is under observation.

The only remark which it is necessary to make with regard to the special treatment of this form of eczema is, that the patient should be confined to bed during the cure, if possible, when the eruption is on the feet; but if this cannot be effected, a bandage should be constantly and equably applied. As to the hands, padded splints may be fixed on the flexor surfaces of the hands and wrists, so as to keep the joints at rest, and facilitate the healing of the fissures. When bullæ form, they should be left intact unless the pain and tension are great, when the serum may be allowed to escape by means of a small puncture.

In *eczema of the legs* (Eczema crurale) we must bear in mind the predisposing causes; the distance of these parts from the centre of the circulation; their usually dependent position; and the frequent occurrence of varicose veins, particularly in persons advanced in years. We must also recollect, that the eruption is a frequent accompaniment of that thickening of the tissues and swelling of the leg which goes by the name of elephantiasis arabum.

All these circumstances, by retarding the current of the circulation and keeping up congestion, account for

the fact that eczema is very apt to assume its most aggravated forms on the leg, and that ulcers, often of great size, so usually complicate the affection (eczematous ulcers, as they are called). These sores may exhibit any form of ulceration from the inflamed to the indolent, and must be treated according to their appearance upon general principles.

In the treatment of eczema of the legs, it is of the first importance to confine the patient to bed, or to the sofa when it can be managed; otherwise many cases will be encountered which resist all the other recognised means of cure. A case of this kind occurs to me now, in which everything failed till I prevailed upon the patient to remain in bed for a week, in addition to the treatment previously followed out; at the end of which time the disease, which had resisted treatment for many weeks, had completely disappeared.

The use of a bandage is always to be recommended, and, while it is indispensable if the patient is going about, it is also serviceable by giving support and relief from uneasiness when he is confined to bed. It should be firmly and equably applied, and taken off several times daily and readjusted, as it is apt to become loose, and consequently ineffective. The bandage may be of linen, and applied dry; or it may be dipped in a solution of dextrine in boiling water, according to Devergie's recommendation, so that when it dries it forms a hard case for the leg. The firm application of straps of adhesive plaster, about an inch wide, and

long enough to go once and a-half round the limb in the form of a scultetus, is often useful, especially if indolent ulcers are superadded. It is often necessary, before applying the plaster or dextrine bandage, to cover the eruption with a thin rag smeared with cold cream or fresh butter, as they are apt to irritate it. Sometimes a flannel bandage may be used with advantage, either dry or wrung out of cold water, or steeped in one of the solutions (such as the "tinctura saponis viridis cum pice," see page 79) which are being applied to the eczematous surface. The local applications used in eczema of the legs do not differ from those employed in the treatment of other parts; with this exception, that one may oftener have recourse to leeches, and with temporary benefit, than when the eruption is seated elsewhere, owing to the great tendency to congestion of these parts.

Eczema of the genital organs, (*Eczema genitalium*) occurs both in females and males. In the *female* the eruption may be limited to the labiæ, or extend upwards to the mons veneris, downwards and backwards to the perineum and anus, and laterally to the angles formed by the junction of the labiæ with the thighs. The vagina may likewise be implicated, in which case its walls are infiltrated, reddened and exuding; but it is not the seat of any itching, except at the orifice of the canal. The labiæ and clitoris are often enormously distended, and the itching so harassing as sometimes to induce irritability of the bladder and to lead to

improper habits. At times the exudation from the eruption is great, at others the parts are dry and scaly. The local causes specially operating in the production of this variety of eczema are irritating discharges from the genital organs, the habitual warmth and moisture of the parts, and the friction of opposed surfaces. Pregnancy, also, and tumours of the uterus and neighbouring viscera, act as predisposing causes, by pressing on the large vessels and causing congestion and a varicose condition of the veins of the genital organs.

In the *male* the eruption attacks the scrotum or penis alone, or involves also the neighbouring parts, as in the female, or invades the greater portion of the cutaneous envelope. The scrotum and penis are often enormously distended, producing a sort of elephantiasis of the parts, which is apt to mislead one as to the nature of the case. The skin is often quite tense red, perfectly smooth and shining, and the exudation profuse, dropping continually from the most dependent part of the scrotum or soaking the dressings. The itching is usually excessive, and may lead to masturbation and irritable bladder.

In the more chronic variety, the formation of scales often takes the place of the serous exudation, and, as pointed out by Hebra, the scrotum being thrown into folds, the eruption is often limited to the prominences of the folds, the intervals between each fold being free from disease, as may be detected by putting the skin upon the stretch. I have read, though I forget where, of cases of

eczema of the genital organs being produced or kept up by stricture of the urethra, the cure of the eruption coinciding with the removal of the stricture.

Eczema is often limited to the anus (Eczema ani), though it frequently extends to the neighbouring parts. As before mentioned, it sometimes occurs in connection with eczema of the lips (see Eczema labiorum, page 105). The occurrence of the eruption is favoured by constipation of the bowels, or other gastro-intestinal derangement, by hepatic disturbance, tumours in the abdomen, or anything which prevents the free return of blood from the rectum. It frequently coincides with a varicose condition of the veins of the rectum, and with hæmorrhoidal tumours; hence the name Eczema hæmorrhoidale.

Sometimes the morbid condition of the anus is arrested in the first stage, and does not amount to an eczema, itching being almost the only symptom (pruritus ani), which is often very distressing. But in persons predisposed to eczema, the scratching calls forth an eczematous eruption, which is too frequently complicated by the formation of fissures, and these are exceedingly painful, especially at stool.

The treatment of eczema of the genital organs and anus does not differ from that of eczema in general, except in so far as we must bear in mind the predisposing causes, and endeavour to remove them if possible. I must refer my readers, therefore, to the treatment of eczema in general, and to the remarks which I am

about to make with regard to the treatment of eczema intertrigo.

Eczema not unusually attacks *the nipples* and neighbouring portions of the breasts (Eczema mammæ), the nipples being usually situated in the centres of the patches. The eruption occurs oftenest in the female in connection with lactation, and chapped nipples constitute, in reality, the commencement of the fissured variety of eczema (eczema rimosum). In males, or in females who are not nursing, the detection of an eczematous eruption upon the nipples should lead us to suspect that it is brought out by the scratching induced by an attack of scabies, and the acarus and its accompanying symptoms should be sought for. Eczema of the mamma is apt, by extension of the inflammation to the deeper-seated parts, to give rise to abscess of the breast.

Sometimes an eczema is developed around the *umbilicus* (Eczema umbilici), especially in the case of those who are affected with scabies; but the disease here exhibits no other peculiarities.

The eruption is exceedingly prone to invade those portions of skin *which are in contact with one another* (Eczema intertrigo), owing to their moisture, and the friction to which they are exposed. We accordingly find it very frequently in the axillæ, between the hips at the angle where the thigh meets the perinæum, and behind the ears. For similar reasons we find it often on the flexor surfaces of the joints, these parts being in contact with one another in certain positions of the limbs.

In such cases we must wash the parts frequently, but dry them thoroughly after each ablution. The opposed surfaces of skin must be kept separate also, so as to prevent friction, and the accumulation of the exudation; for which purpose a piece of dry lint may be inserted between them, care being taken that it is smoothly applied and frequently changed, else it becomes soaked in the discharge, acts as an irritant, and does harm instead of good. It is very useful, also, before applying the lint, to sprinkle a little powdered starch or oxide of zinc over the eruption. The powder absorbs the excessive moisture, which, along with the friction of the opposed surfaces, is the exciting cause of the disease. The drying up of the moisture and the prevention of friction are often of themselves sufficient to effect a cure, especially if the attack is not a severe one; but if these means fail, the treatment recommended for eczema generally must be superadded.

The first part of the paper is devoted to a general
discussion of the problem. The second part
contains a detailed description of the method
used in the experiments. The third part
presents the results of the experiments and
a comparison with the theoretical predictions.
The fourth part discusses the limitations of the
method and the possibilities for further work.
The fifth part contains the conclusions of the
paper. The sixth part is a list of references.
The seventh part is an appendix containing
some additional data.

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