PRURIGO, PRURIGINOUS ECZEMA, AND LICHENIFICATION.*

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PRURIGO. Historical.

HEBRA was not the first to describe the prurigo which is specially associated with his name. It had already been described, though not clearly discriminated, by Willan under the name of *lichen agrius*, and by Cazenave, Devergie, and other French writers under the designation of *lichen agrius*. But Willan's prurigos included all affections in which itching is associated with a special eruption and other phenomena; thus he recognized general prurigos and a number of local prurigos—prurigo of the anus, of the prepuce, of the scrotum, of the urethra, of the vulva, of the pubes; and he ranked them with strophulus and the so-called lichens of the day in the Order of the Papules. To Erasmus Wilson prurigo was simply "a pruritus associated with an organic change in the tissues of the skin," and its pathognomonic characteristic was the pruritus—"a pruritus without obvious or apparent cause." In Wilson's day, therefore, the distinction between prurigo and pruritus had not emerged, and dermatology is perhaps indebted to Hebra at least as much for his insistence upon this distinction as for his classic description of the severe form of prurigo known by his name.

In limiting the term "prurigo," however, to a single type of the affection, Hebra fell short of the truth. To him prurigo was an incurable and ultimately fatal affection, beginning in infancy as an urticaria, which is soon followed by characteristic papules that give rise to intense itching. Enlargement of the lymphatic glands follows, and later the skin undergoes the changes now known as lichenification. Kaposi saw that his master had described only the grave form of a disease which sometimes manifests itself in a milder form, *prurigo mitis*, not necessarily incurable, and showing no tendency to develop into the severer type. French dermatologists were quick to seize upon the same error, and also to question another of the Vienna master's statements—namely, that the papules precede the itching. On these points they have long been virtually agreed, but there have been and still are very considerable differences among themselves. Thus Vidal¹ preferred to style the prurigo of Hebra a lichen, maintained that from the anatomico-pathological point of view prurigo is only a large papule of lichen, or lichen only a small papule of prurigo, and declared that it is not rarely cured. Besnier² included among the prurigos many other itching conditions which he had separated from the eczema group, qualifying them all as diathetic prurigos because he regarded them as associated with individual conditions of tissues and of organs, provoked or maintained by an abnormal mode of nutrition. To him prurigo was nothing more than an itching dermatosis accompanied by a visible eruption—a position not very dissimilar from Willan's. Brocq³ differs from both Vidal and Besnier. In his view there are three forms of prurigo: (1) *Prurigo simplex*, with no eczematization or lichenification—the urticaria papulosa or strophulus of many other writers; (2) *prurigo of Hebra*, which may be either severe or mild, and of which the milder forms may begin much later in infancy and may die away, sometimes within a few months; and (3) *prurigo ferox*, in which the papules are larger and harder, the itching is frightful, and the gland enlargement considerable, but in which the lichenification is less extensive than in the prurigo of Hebra. Darier⁴ also recognizes three forms of prurigo, which, however, do not tally completely with Brocq's. The first, like Brocq's, is *prurigo simplex*, or strophulus (urticaria papulosa). The second he styles *prurigo of Hebra*, but he regards it as including not only (a) the type of Hebra-Kaposi, but also (b) a mild French type, and (c) *prurigo ferox*. His second prurigo, therefore, includes Brocq's second and third types. Darier's third prurigo is styled *prurigo vulgaris*, which may be either (a) diffused, or (b) circumscribed. This corresponds

with Brocq's *névrodermites*, or *prurits avec lichenification*, which that author does not admit into the category of the prurigos, but regards as forms of pruritus.

It was not until the year 1881 that the prurigo so precisely and luminously described by Hebra was recognized as such in England. In the Diseases of the Skin section of the International Medical Congress held in London in that year Morrant Baker exhibited 3 cases which were accepted as examples of true prurigo of Hebra by Kaposi and the younger Hebra, as well as by Unna. The event constitutes one of the landmarks of the history of prurigo in these islands. For, strange as it may seem, in the country of the founder of the Order of Papules, who had described, though he had failed to give clear identity to the disease, the severe form of prurigo had up to this time been overlooked. That it was, and still is, of less frequent occurrence in this country than on the Continent, is no doubt true; but in the discussion which followed Morrant Baker's paper the younger Hebra affirmed that he had seen undoubted cases at St. Bartholomew's.

At the Third International Congress of Dermatology, held in London in 1896, there was a discussion on prurigo which brought into relief the wide differences of view that prevailed on this subject. Paraphrasing a famous apophthegm, it might be said, As many dermatologists, so many views of Prurigo. By apt citations from all the leading authorities, J. C. White,⁵ of Boston, showed that there was the widest divergence on almost every phase of the disease—its age-incidence, its course, the character of the eruption, the causal relation between the neurosis and the papule, and the pathology. He enumerated nine different conceptions of the essential nature of the disease, as (1) a pruritus, (2) a Sensibilitäts-neurose, (3) a Motilitäts-neurose, (4) a pruriginous diathesis, (5) a neurodermatosis, (6) a mixture of lymphatism, arthritism, and nervosism, (7) a vasomotor transudation, (8) a trophoneurosis, and (9) a dyscrasia. To which was added a tenth view, undoubtedly the most modest, possibly the most candid of the series—pathology unknown.

During the intervening sixteen years prurigo has continued to excite the lively interest of dermatologists of all nations, but there is still nothing approaching a consensus of opinion on any of its various aspects. I have already touched upon the different views that prevail in the French school. But I do not know that English-speaking dermatologists are much nearer unanimity. The chief difference between the two schools, indeed, is that we have been rather more sensible of the difficulties of the subject than have our French *confrères*, and have been less prone to the confident elaboration of theories. On a question so involved in obscurity dogmatism would be eminently out of place, but one may hope that as the result of free discussion some progress, however slight, may be made towards common agreement.

Nomenclature and Classification.

It was Besnier who proposed that the severe type of prurigo described by Hebra should be known by that master's name, although it would have been better, he considered, to find a new designation for what he considered to be in some sense a new malady. There is certainly need for simplification in the nomenclature of prurigo. That members of the same school of dermatology should regard "prurigo of Hebra" as including and as excluding the severest type of the affection is admirably calculated to produce misunderstanding. Sensible as I am of the obligations we are all under to Hebra in this matter, it appears to me that it would be better to cease to attach his name to the affection, since it has come to be, in a sense, a symbol of confusion and discord. The milder affection which he failed to recognize is as truly prurigo as the one he actually described. They are, in fact, but different types of the same affection. Why, then, not speak simply of *prurigo gravis* and *prurigo mitis*? Prurigo gravis might be held to include the worst cases of the affection, the rare type with which the name of Vidal is linked. But the differences between these two groups of cases, the less severe and the more severe, are, perhaps, sufficiently pronounced to make it convenient to preserve for the worst type of prurigo the expressive name *prurigo ferox*. If other prurigos are to be recognized, they may be similarly qualified. Thus, it is believed by some that there is a *prurigo gestationis*, which can be differentiated from

* Read before the Dermatological Section of the Royal Society of Medicine, June 20th, 1912.

herpes gestationis, and a *prurigo lymphadenoma*, in which, it is held, true prurigo papules are present. To me, however, the evidence for these so-called prurigos seems to be by no means conclusive, and I am not prepared at present to recognize more than the three forms of the affection mentioned above—prurigo gravis, prurigo mitis, and prurigo ferox.

With regard to classification, I cannot regard as a prurigo any itching affection which does not present an eruption of discrete, hard papules, of the kind and in the situations to be presently described, followed sooner or later by the peculiar roughening and thickening of the skin known as lichenification. Besnier claimed that there was a prurigo senilis, a prurigo of the scrotum, of the anus, of the vulva, and so forth; but such affections are now regarded as belonging to the great pruritus group, and it is convenient, I think, to limit the term "prurigo" in the way suggested. From prurigo, thus understood, the prurigo simplex of Brocq and of Darier, which appears as the first of their three types, and is identical with the lichen urticatus of Bateman, the urticaria papulosa of Kaposi, Duhring, and other writers, is excluded by the absence of lichenification, while the prurigo vulgaris which is the third of Darier's types, and is regarded by Brocq not as a prurigo but as a pruritus with lichenification, is excluded by the absence of the characteristic papules. I confess that I have sometimes been disposed to admit this last affection into the group of prurigos, but further consideration has led me to adhere to the definition of prurigo formulated above. A classification which rests on a purely clinical basis can, of course, make no pretension to finality; but so long as the etiology of prurigo is veiled in its present obscurity, and the pathology is little more than a collection of rival theories, no other mode of classifying the affection is possible.

Symptoms.

Whether of the mild or of the severe type, prurigo usually begins in early infancy, between the eighth and the twelfth months of life. Hebra and Kaposi⁶ went further, and taught that it always begins in this period, but cases have been reported commencing between the ages of 10 and 15, and even later. According to Hebra and Kaposi, again, it appears first as an urticaria, which manifests itself in the form of wheals, of itching, of excoriations, and of insomnia, and as an urticaria it persists until about the beginning of the second year, when the characteristic papules begin to appear. In this interpretation of the first signs of prurigo I am unable to acquiesce. It is not unlikely that one form of urticaria, namely, urticaria papulosa, forms a connecting link between urticaria and prurigo, but, like Besnier, the late J. F. Payne, Colcott Fox, and other dermatologists, I have never seen an urticaria develop into prurigo. The papules are hard, small, often perceptible only to the touch, pale or reddish in colour, and distributed principally on the extensor surfaces of the limbs, the lower part of the abdomen, the sacral region and buttocks, and the back and front of the chest, but sparing the joint flexures. They give rise to violent itching and, when subjected to the irritation of scratching, become reddened and increase in size. When a papule is excoriated serum and blood exude, which quickly dry into a brown crust. Other lesions appear, which may resemble those of eczema (except that the flexor surfaces are still usually spared) and of urticaria, and finally the skin becomes lichenified. One crop of papules succeeds another, and the disease becomes chronic, but usually there is some abatement in summer, with exacerbation in winter. In severe cases the integument takes on a brown colour, there is desquamation, the hairs are extruded, there are pustules and sores, and the femoral and axillary glands enlarge and may go on to suppuration.

One peculiarity of the disease is that after the third year of life it undergoes no further evolution, so that there is no essential difference in pathological physiognomy between a patient of 3 and a patient of 30 years of age. Another peculiarity is that prurigo mitis never develops into prurigo gravis. In the former type, as a rule, the papules are less numerous, the eruptions less frequent, the itching is much less intense; the lesions, too, may be limited to the lower limbs. In the severest and rarest form of the disease, which may be called prurigo ferox, the papules are much larger, varying in size from a small pea to a small cherry

(Brocq), are noticeably raised above the level of the skin and give to the touch a sensation of hard nodosity; the colour varies from a pale pink to a vivid red. They are crowned with a large thick-walled vesicle, sometimes filled with a purulent liquid. Disseminated in no traceable order over the body, and even upon the face and scalp, they are most numerous upon parts exposed to friction. They are accompanied by itching of the intensest kind, and the patient, in his frenzy, seeks relief by excoriation that may not stop short of tearing off pieces of flesh. The lymphatic glands are usually much enlarged. Lichenification is present in all cases, but is not so widespread in prurigo ferox as in the other forms of prurigo. As in the other types, the symptoms are worse in winter than in summer.

Hebra, and after him Kaposi, held that the papular eruption precedes and is the cause of the itching, and the former considered it probable that the itching is due to irritation of the papillary nerves set up by the serum which quickly accumulates in each efflorescence. Cazenave was one of the first of the French school to maintain that the itching precedes the papule, and this view, which prevails generally among French dermatologists, was crystallized by Jacquet into the epigram: "Ce n'est pas l'éruption qui est prurigineuse; c'est le prurit qui est éruptif." A clinical experiment of Jacquet's has been adduced by Besnier in support of the theory that the itching and the papules are independent of each other. The right arm of a girl who had for two years suffered from classical prurigo, and who presented daily upon the trunk and the limbs a discrete eruption of typical papules, was occluded with prepared wadding and a bandage, the bandage being removed each morning for inspection and then reapplied. The itching continued, but not a single papule appeared, while each day, on the left arm, there was an eruption of from three to six fresh papules. The left arm was now similarly occluded, when, though the itching continued, there were no fresh papules, while crops appeared daily upon the right arm. An interesting experiment, certainly; but if this question is ever decided it will be by a concurrence of clinical testimony rather than by the experiments of a single observer—experiments, too, which set up abnormal conditions. Jacquet's experiment, I suggest, proves too much, just as his epigram expresses too much. It has been repeatedly noticed—I am not sure, indeed, that this is not common ground—that the papule, when it has appeared, is a centre of itching. If this be so, it follows that whether the papule or the itching comes first, the two are not independent, as Jacquet's experiment is intended to prove. I would go further than this and say that experience inclines me to the belief that Hebra was to some extent, at any rate, right in his view that the papule precedes the itching and scratching. In many cases the papules appear at an age so early that scratching is hardly possible; the papules, moreover, occur in situations in which they are not accessible to the infant's fingers, and they have been observed to effloresce in groups, as though in obedience to internal impulse rather than in response to external influences such as scratching or friction. But the question is one in which none of us can profess to have had more than a limited experience; while, owing to the early age at which the affection usually begins, it is exceptionally difficult to accumulate satisfactory evidence. Since others who have had cases of prurigo under observation are satisfied that the itching precedes the eruption, I am prepared to regard it as possible that both views are correct. I cannot regard the papule as more than a focus of the itching. The actual cause of the affection, whatever its nature, lies behind the papule. Neither the papule nor the itching, whatever the order of their appearance, is more than a manifestation of the disease—the one a sign, the other a symptom. Is it not, therefore, conceivable that, owing possibly to the accidents of the individual case, the itching may sometimes come first, and in other cases the papule? This view may at least claim the advantage of reconciling the apparently conflicting testimony of observers who are equally competent and equally veracious.

Etiology.

The exciting cause of prurigo has been found in bad hygiene, in overcrowding, in defective alimentation, in

digestive troubles, in gastro-intestinal fermentation, in dentition, in auto-intoxication, etc. Brocq admits the influence of these various factors in provoking and maintaining attacks of the disease, but denies that they are essential causes. The true cause he finds in hereditary cross breeding (*un métissage héréditaire fort complexe*), in which four influences co-operate, namely, (1) the neurotic condition of one or both parents, either of long standing or operating during the mother's pregnancy; (2) lymphatism, either idiopathic or due to tuberculosis or syphilis; (3) auto-intoxications, originating in arthritis and aggravated by bad hygiene and by life in crowded cities; (4) chronic intoxications, in which alcoholism and caféism take the principal rôle. More shortly, he describes the prurigo of Hebra as a cross-breeding (1) of arthritis, (2) of neurosis, (3) of lymphatism, tuberculous, or due to hereditary syphilis, and (4) of hereditary intoxications (alcoholism and caféism). In his view, it is on the soil thus prepared that the occasional causes enumerated above, and especially defective alimentation, digestive troubles, troubles of the nervous system and bad hygiene, play their part. Darier's etiology is much more simple, and as much less confident. He attributes the disease to hereditary influence and perhaps ("peut-être") to gross errors of alimentation in early infancy; and he mentions that he has seen several cases in which prurigo coincided with asthma. Kaposi contented himself with pointing out that prurigo is met with much more frequently among the poor than among the rich, and more seldom in healthy than in feeble, badly-nourished, and neglected, or scrofulous infants. We may, however, in my opinion, safely include heredity among the etiological factors of this disease. It is difficult to believe that from a neurosis so severe and inveterate, and usually (though not invariably) manifesting itself in early infancy, hereditary influence is absent. But it requires more mental enterprise than I am conscious of possessing to adopt the elaborate theory of Brocq, which looks as though it were less an induction from ascertained facts than a speculative endeavour to assemble all the hereditary influences which could possibly count in this connexion. That this ingenious and distinguished author handsomely meets the craving for a comprehensive etiology cannot be denied; but I know of no other merit to urge in favour of his theory. We are on firm ground in recognizing the influence of the occasional causes which he enumerates. That they are more than predisposing causes is, I agree, doubtful, for in some cases they cannot be traced, and this is another reason why it seems almost inevitable to regard heredity as at least one of the causes, and possibly the essential cause, of prurigo. There is, indeed, one other possibility to bear in mind—that prurigo may be due to a micro-organism. Finding the changes in the epidermis and the hair follicles to bear some resemblance to those produced by micro-organisms in certain infectious diseases of the skin, Unna suggests that the disease may belong to the microbic group. I know of no facts, however, beyond that just mentioned, to support this hypothesis; and prurigo has always been regarded as non-infectious.

Pathology.

The principal theories of the nature of the papule of prurigo are: (1) That of Riehl—that they are spastic oedematous papules of the cutis, closely allied to urticaria; (2) that of Auspitz—that they are pseudo-papules, depending on the contraction of the arrectors; (3) that of Caspary—that they are epithelial papules due to acanthosis. More recently Leloir and Tavernier claim to have observed a degeneration of the prickle cells with the consequent formation of cysts containing a clear fluid, some altered epithelioid cells and leucocytes, and their finding has been confirmed by Kromayer and other pathologists. Hebra was the first to teach that the papule of prurigo has analogies of structure with the vesicle; but the view of Leloir and Tavernier is that it is *sui generis*. Darier states that he has failed to observe the intra-Malpighian cavity described by Leloir and Tavernier, nor has he found the oedema reported by Riehl; but he agrees with Caspary that the papules are the expression of an acanthosis. Unna⁷ reports, with Riehl, that there is a spastic oedema of the cutis, and that the prurigo papule has an urticaria-like basis, but there is also, he says, a proliferative inflammation of the vessel sheaths as well as still more characteristic changes in the epidermis—a degeneration of the prickle cells into a pulpy

mass, forming a vesicle, and later, in some instances, an impetigo pustule, which, however, contains no staphylococci. These vesicles he identifies with those found by Leloir, but, unlike Tavernier, he could determine no connexion between them and the sweat pores. Unna, continuing to play the part of a reconciler, holds that Auspitz and others who have described changes in the hair follicles are in some measure correct. He found the arrectors in some of the follicles thickened, and persisting in spastic contraction, so that the hair follicle was erected and the point of insertion of the muscle in the papillary body appeared funnel-shaped. He is unable, however, to agree with Auspitz that the characteristic lesion of prurigo is a mere pseudo-papule due simply to a contraction of the arrectors, for the same hair follicles show proliferative and exudative inflammatory changes and necrosis, so that the contraction and enlargement of the arrectors is nothing more than an accompanying or secondary symptom. The epithelial proliferation described by Caspary he compares with the acanthoses present in the neck of the follicle and its neighbourhood in certain infectious diseases of the epidermis.

It will thus be seen that Unna has found something to agree with in most of the prevalent theories of other pathologists. But considerable differences still remain, and it is not unlikely, as he suggests, that the workers whose investigations he discusses had before them the results of entirely different conditions.

Prognosis.

Hebra declared that prurigo, as he understood the term, was incurable. Kaposi concurred, although he held that if treatment is begun in early infancy the disease may be so favourably influenced that at times the patient may believe himself to be cured. Even in cases of moderate severity, he believed, there is no hope of cure, while cases of the mild type are only curable if treatment begins in early infancy and is perseveringly applied. There are grounds, I think, for giving a rather more hopeful prognosis in cases of the mild type. Not seldom, under judicious treatment, such cases recover during childhood or in adolescence. At best, however, the affection is a serious one, entailing much irritation and nervous depression and suffering; at worst it is one of the most distressing affections in the whole range of dermatology.

Diagnosis.

When it has reached the typical stage, prurigo, in the sense in which the term is employed in this paper, is, as a rule, easy of recognition. The positive characters are the usual origin of the affection in infancy, its persistence, the poor general health, the preference displayed by the papular eruption for the extensor surfaces of the limbs and the immunity enjoyed by the bends of the joints. The glandular enlargement, in association with the eruption, is one of the distinctive features. In the early stage the diagnosis from urticaria papulosa is, however, exceedingly difficult, and it may be necessary to defer judgement. In later stages, also, the characteristic lesions of prurigo may be masked by eczematous crusts or by pustules, etc., and the eczematous phenomena may even extend to the parts spared by the prurigo. In cases thus complicated the diagnosis as between prurigo and such conditions as chronic eczema, chronic urticaria, scabies and pruritus may have to be postponed until the secondary lesions have healed. The distribution of ichthyosis is similar to that of prurigo, and the former disease, like the latter, may be complicated with eczema, but in ichthyosis the prurigo papule is absent, and the skin is extremely dry and scaly; and it is seldom difficult to distinguish between the two conditions.

Treatment.

This must be mild or vigorous according to the intensity of the affection, but whether this be of the one type or of the other, the measures must be applied again and again, as the symptoms reappear. As intimated under prognosis, treatment in the early stages is of special importance. The complicating lesions having been dealt with, the indications, as Colcott Fox⁸ says, are to improve the patient's nutrition by good hygiene, generous diet, and cod-liver oil; to control the itching by baths medicated with starch, sulphurated potash, creolin or izal, and to dissipate any coexistent eruption. All irritating preparations must be

avoided. The external remedies employed by the Vienna school are sulphur, tar, soap, and naphthol. The sulphur is used in the form of soap, of solution of sulphur of potash or of thermal waters; the tar, either pure or mixed with olive or cod-liver oil. The tar is used especially to control the itching. Brocq holds that the best of the topical remedies is cod-liver oil, one recommendation of which is that it can be used in all stages of the affection, even the most acute. If the surface is smeared with the oil the applications must follow each other quickly; and he considers it better to envelop the parts in an impregnated many-folded bandage covered with an impermeable varnish. He speaks highly of a preparation of cod-liver oil and white wax in the proportion of three to one, used as a pomade, with or without covering. Cod-liver oil may also be used in the form of ointment, with which, when there is intense itching, β -naphthol or carbolic acid may be incorporated. Colcott Fox has had excellent results from the use of a carbolic-acid ointment, Wolff from alternate injections of carbolic acid and pilocarpine. In severe and rebellious cases the patient may be soaped in a warm bath, and a tar preparation or Vlemminckx's solution applied, the patient continuing in the bath or lying in bed with the application still on. If such vigorous measures as these be employed they must, of course, be carefully watched. Friction with Wilkinson's ointment, ten or twelve times repeated, is also said to give relief in bad cases. Occlusive dressings, such as Unna's glyco-gelatin, or caoutchouc, have been found useful in preventing the eruption, though occlusion, as Jacquet's experiment shows, fails to influence the itching. Radcliffe Crocker's⁹ chief means of treatment were rest in bed, the application of naphthol ointment, and the administration of cannabis indica. Thyroidin is well spoken of as favourably influencing the eruption, at least temporarily.

Thibierge¹⁰ has employed lumbar puncture in a long series of cases of pruriginous dermatoses, and while he reports temporary benefit in some "diathetic prurigos" and in dry chronic eczemas, he has been unable to draw any conclusion from the few cases of prurigo of Hebra which he has submitted to this treatment. The itching affection in which he has found it to yield the best results is lichen planus. Bayet¹¹ has used radium extensively in a number of pruritic affections, including Darier's third prurigo, with almost constantly good results, even in refractory cases. The itching disappeared almost suddenly, and the relapses were few and easily amenable. But his report does not include cases of prurigo proper. Brocq believes that he has seen cases of even rebellious prurigo mend under radium-therapy, and I am disposed to think that radium and the x rays may prove to be the least unpromising methods of treating this affection. It will be seen that there is as little concurrence of opinion in treatment as in other phases of this baffling affection. I have thought it desirable to enumerate the chief remedies that have been well spoken of, for in prurigo, as in other pruritic affections, the same agents yield different results in different hands, or in the same hands in different cases, and the practitioner, when he fails with one, must try others.

PRURIGINOUS ECZEMA.

Just as urticaria papulosa, as mentioned above, is a link between prurigo and urticaria, so do the pruriginous eczemas form a chain which connects prurigo with eczema. These allied affections may appropriately be briefly discussed before passing on to consider the lichenification which is common to them and to so many other pruritic conditions.

Pruriginous eczema corresponds with certain of Besnier's diathetic prurigos. With Brocq I do not admit their right to be regarded as forms of prurigo, though Unna holds, on both clinical and histological grounds, that the changes which take place in the skin in these forms of eczema, and which he interprets as an increased vascular tone, suggest that both processes have a common basis. The itching which characterizes these eczemas is so intense that their right to be qualified as pruriginous is incontestable, while the distinctly eczematous lesions which effloresce at times of exacerbation and are mingled with the equally unmistakable marks of lichenification fully justify their being ranked among the

eczemas. The lesions are of the most varied kind—erythematous, urticarial, papular, vesicular, impetiginous, with a preponderance of the urticarial element, and thus they extend by almost imperceptible gradations from eczema on the one hand to prurigo on the other. From true prurigo they are differentiated by always having an antecedent history of eczema, by running a less regular and more varied course, and by not being limited to the extensor surfaces, though it is these surfaces that are most affected by the itching, the lesions on the flexor surfaces corresponding rather with those met with in papular squamous eczema of the ordinary type. It is usual to find scales, crusts, and vesicles in situations where the scratching has been most unrestrained. There is seldom profuse "weeping," but in rare cases the whole surface of the skin may be moist. As a rule there is some glandular swelling, less pronounced, however, than in prurigo.

There is, perhaps, no pruriginous affection, not even prurigo ferox, in which the itching is more intense and intolerable than it frequently is in this group of eczemas. Such itching, as I have heard patients declare, is far harder to bear than pain; the pain of excoriation, indeed, is the only assuagement that can be found. Not seldom the pruritus is psychical; often, too, it is periodical, undergoing nocturnal or seasonal accessions and remissions, in some cases for long periods together, with singular regularity.

Frequently, though by no means invariably, the affection begins in infancy or in early life. The patients often have a flabby skin with more pigment than normal. Sometimes the eczema is in close relation to dentition: it may also be associated with asthma, with uterine disorders, with mental strain or shock, with insomnia, migraine and other nervous phenomena, or with xeroderma. I have known a distinct alternation observed time after time between asthma and pruriginous eczema, as though the one or the other were a necessary manifestation of the underlying morbid state. The itching may be due to disorders of the secretions which so far defy detection, or to the influence on the nerve centres of morbid conditions of the blood, or to changes in the nerve-endings of the skin, or to hereditary cutaneous irritability, or to microbic agency, or—as is indeed more probable—to a combination of two or more of these pathological states. Whatever the cause, there is between the itching and the consequent lesions the reciprocal reaction already noted in connexion with prurigo. The itching provokes scratching, the scratching sets up lichenification, which irritates the nerve-endings and provokes further itching; and the main object of treatment is to break this vicious circle by reducing the lichenification and restoring the damaged tissues to the normal state. The most effective means of attaining this end will be considered in the next section.

LICHENIFICATION.

The word "lichenification" was applied by Brocq in the year 1891 to the peculiar roughening and thickening of the skin which so frequently follow scratching; but the changes themselves had been clearly described long before. Brocq expounded his theory of lichenification and proposed the term in a lecture delivered on May 29th and June 3rd, 1891, and published in that year, and it was not until May 12th, 1892, that Besnier proposed the term "lichenisation" for the condition. Brocq was therefore first in the field, and his also is the more appropriate name, since there is implied in it the idea that the changes in question, instead of being the direct consequence of the itching, or of the primary lesions, are *made*, caused by the scratching. Lichenification, as Brocq says, is not pathognomonic of a definite morbid state, but rather a general process which may develop without a preceding dermatosis, or may occur in the course of such dermatoses as prurigo, chronic eczema, pruriginous eczema, psoriasis, psoriasiform parakeratosis, pityriasis rubra, lichen planus, certain artificial eruptions, and, according to Sabouraud, chronic streptococcic infections. Lichenification, then, may be, on the one hand, primary, or on the other hand secondary, as when it supervenes upon an anterior dermatosis. Primary lichenification may be due to so simple a cause as slight habitual friction, as in a case mentioned by MacLeod,¹² that of a timekeeper in a

factory, who, spending his time leaning on a counter checking the time of the workmen, got into the habit of rubbing his arm on the counter, with the result that a patch of lichenification appeared on the ulnar aspect of the left forearm. Primary lichenification may also be due to friction of corsets, hernial bandages, and the like, or to contact with irritant liquids, or secretions, as in the thighs of women who do not keep themselves scrupulously clean. Brocq's great example of primary lichenification is the group of conditions which he styles *névrodermites* or *prurits avec lichenification*-- the chronic or papular eczema of the Vienna school, the *lichen simplex chronique* of Vidal, the *prurigo vulgaire* of Darier. This pruritus may be either circumscribed or diffuse. In the former the only cutaneous lesion is the lichenification, and this is usually true also of the latter, though rarely there may be urticaria as well as itching.

Clinical Features.

The first change in the skin is a darkening of the colour. On close inspection the integument is seen to be finely grained, and then flat, imperfectly delimited, somewhat shiny pseudo-papules appear. These various lesions become more pronounced, both in colour and in form. The skin is infiltrated with embryonic elements, grows thick and hard and rugose, the normal striae become exaggerated and cross each other, so that the surface is broken up into a network of square, lozenge-shaped or polygonal "meshes," presenting some resemblance to the glossy facets of a miniature mosaic. Sometimes there is a covering of fine scales. The surfaces affected by the process vary greatly in extent, and the borders are ill-defined.

Lichenification is seen in its most typical form in the cases which Brocq designates *névrodermites*. In the circumscribed form the affected surface is about as large, on an average, as the palm of the hand; in the diffuse the lichenification occupies very extensive and imperfectly delimited areas. In circumscribed lichenification the patch is usually somewhat oval in shape but the form varies greatly in different cases, as also does the site, but the favourite situations are the neck, the upper and inner parts of the thighs, the antero-extensor aspect of the legs, the lumbar region, the scrotum or the vulva, the female waist, the axillary and popliteal spaces, the plantar and palmar surfaces. The face is usually spared, but MacLeod has seen characteristic lesions on the lower eyelids and behind the auricles. The patches may be single or multiple and are frequently two or three in number; occasionally they are symmetrical, especially when they are in the neighbourhood of folds. A complete plaque, according to Brocq, presents simultaneously three concentric zones: (1) An irregular external zone, some two or three inches in breadth, made up of tiny papules, varying in colour from *café au lait* to clear brown or to brownish yellow; (2) a middle or papular zone, pinkish in colour, composed of glistening papules irregular in contour, often flat topped, and varying in size from a pinhead to a small lentil; (3) an inner zone, or zone of infiltration, usually oval in shape, in which the process of lichenification is seen at its height. It is in this third zone that the infiltration, the thickening, and the quadrillation of the skin are most marked, and, except in regions where there are abundant secretions, the surface is covered with fine scales. These, then, are the zones of a complete plaque. But much more frequently the plaque is incomplete, and is composed only of discrete, more or less developed papules, or of a zone of infiltration. The itching is worse towards evening and soon after the patient has gone to bed. It is often intermittent and at times may be completely absent. In some cases it is so intense as to induce nervous crises, and the patient is only calmed when he has excoriated the seat of the pruritus. When a plaque is about to disappear the itching becomes less severe and then entirely ceases. On an average a plaque continues for several months, and it may subsist for years.

In diffuse lichenification the process is much the same as in the circumscribed form. The regions most affected are the arms and the forearms, the thighs, the upper part of the thorax, and sometimes the flanks, the lower part of the abdomen, the legs, and even the face. When the limbs are affected the lichenification is frequently symmetrical.

Pathology.

The histological structure of the skin in lichenification is less altered than one would suppose from the marked changes on the surface. Darier interprets the process as essentially a hyperacanthosis, an active proliferation of the rete mucosum, with considerable lengthening of the papillary processes, and a cellular infiltration, moderate in degree, in the papillary layer.

Etiology.

In lichenification, as in the itching which precedes it, heredity is not improbably a factor. Women are more liable than men, possibly because of their inferior nervous stability, and it is most often met with in adults. Why it is not a sequel of long-continued scratching in all pruriginous affections, and why some subjects of the affections in which it usually appears escape, are obvious questions. To the first, Brocq's reply is, that some cutaneous affections may so modify the vitality or nutrition of the tissues that lichenification is easily produced, while in others the resistance of the integument to trauma appears to be normal, or even augmented. To the second question he finds the answer in personal idiosyncrasy. Some subjects, he says, seem to be more predisposed than others to lichenification; he thinks it possible, indeed, that in lichenification individual predispositions may play the capital rôle. For the production of lichenification, then, not only itching and scratching are necessary, but the affection which is the cause of the itching should predispose to the lichenification, and the patient should also have a similar predisposition. It need hardly be remarked that the very tentative terms in which this explanation is couched show that it is nothing more than a speculation, however plausible. In the present state of our knowledge it is certainly difficult to understand the incidence of lichenification, except by assuming a predisposition either set up by the affection, or pre-existing in the patient, or both the one and the other. With that, for the time being, we must be content.

Diagnosis.

Lichenification, as a rule, is easy of recognition. It is most closely simulated by the lesions sometimes met with in the genito-crural region in women affected with gleet, but, according to Brocq and L. Bernard, the surface of the skin in these cases is more velvety. In some cases it is difficult to distinguish between lichenification and patches of lichen planus, and there is much to be said for the view that the two processes are intimately related. Brocq, however, contends that in lichenification the initial lesion is essentially unlike that of lichen planus, in which the typical lesion, instead of being a macule, or an ill-defined flat or round papule, is a flat polygonal papule, not seldom umbilicated and lilac-tinted, with puncta and milky lines on the surface which have no analogies in lichenification.

Prognosis.

Untreated, the patches may persist for many months, or for years, or, the itching and scratching ceasing, they may gradually disappear.

Treatment.

The large question of the treatment of the pruritus which precedes lichenification is foreign to my present purpose. The lichenification itself may be treated either with x rays or with radium. Some dermatologists prefer the former; I have had my best results with the latter. I need only cite one case, that of a woman of 36, who had suffered for seven years from intolerable irritation, originating in a severe nervous attack; she was unable to sleep, and was emaciated and neurotic. In shape the lichenified area was roughly triangular, with the apex at the nape of the neck and the base line connecting the spines of the scapulae. At the Radium Institute an apparatus 4 sq. cm. in extent, containing 80 mg. of pure radium bromide, and shielded with 5 mm. of aluminium, was applied for ten minutes to successive patches until the whole area had been treated; the exposures were twice repeated at intervals of four weeks, with the result that, save for a very small patch at the nape of the neck,

the lichenification disappeared. There was great improvement, also, in the patient's general condition, and she gained 7 lb. in weight.

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CERTAIN FORMS OF FEVER OF OBSCURE ORIGIN IN INFANCY AND CHILDHOOD.*

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FEVER of obscure origin is not uncommon in most forms of medical practice, but it is in dealing with children that this puzzling symptom is most often seen.

Those who are called upon to solve the riddle and point out the cause of the fever do not find the solution any the less difficult because of the inability of the child to give reliable information about symptoms, or any the less urgent if there is an over-anxious mother armed with a thermometer of almost uncanny efficiency.

In children the heat-governing mechanism is under unstable nervous control, and rises of temperature follow comparatively trivial causes, while the normal temperature taken in the rectum is, according to Finlayson, subject to considerable variations, and shows a very rapid fall between the hours of 6 and 8 p.m. I should like in passing to draw attention to the well-known fact that a temperature taken four-hourly often shows rises which are not shown on the morning and evening chart.

When confronted with a case of fever in a child—fever which has no obvious cause on clinical examination, and which is not merely temporary, passing off with a purgative—it is best to proceed by a process of exclusion. We must examine carefully first for chest conditions, such as deep-seated or apical pneumonia, localized empyemata, collections of pus; then for tonsillar, pharyngeal, or nasopharyngeal conditions, and for otitis media (this last a by no means uncommon cause of fever, and one needing some skill to diagnose); and, finally, for abdominal conditions, such as appendicitis. Usually these causes of fever can be diagnosed after careful examination and due attention to the history.

Post-influenzal conditions may give rise to much anxiety, because there may be so little to show for the temperature, and visions of many far more serious conditions pass across the mind of the medical attendant, who can only have recourse to the process of elimination.

Another common but obscure cause of fever is the presence of caseous glands, either bronchial, mediastinal, or mesenteric. In some cases they are so marked as to be obvious on palpation or percussion, but in most cases they are by no means easily diagnosed, the only symptoms being of a general nature. The cutaneous tuberculin reaction and the history are both valuable, while careful palpation of the abdomen is needed, and examination by the x rays is a very important asset to our means of making a diagnosis. By the last method we can see bronchial or mediastinal conditions which were formerly inaccessible. The temperature does not necessarily rise more than one or two degrees, but may be quite high enough to cause anxiety.

Rheumatism.

Rheumatism is perhaps one of the most important of the causes of fever in children, and, what is more, its ravages may be of an obscure nature. A noticeable

feature of this disease in children, as distinguished from adults, is that it rarely takes the acute articular form, except, perhaps, in older children. Much more often there are only sore throat, some vague shooting pains, and some heart lesion. This may be definite endocarditis or myocarditis or pericarditis. Both myocarditis and endocarditis may give a systolic murmur (often soft, blowing, and easily missed) and an increase in the size of the heart. Myocarditis is much more common than endocarditis, and, with proper treatment, recovery should be complete, but while it lasts the temperature may be high enough to cause anxiety. Endocarditis may be difficult to diagnose and give few signs at the heart, and yet the rises of temperature may be considerable. Not all such cases are of rheumatic origin. I have under my care one case of septic origin and have seen several following scarlet fever.

I will now quote a case illustrating difficulty of diagnosis:

Girl, aged 9. Symptoms: pallor, bronchitis, persistent unexplained fever of an irregular nature, sometimes reaching 103° and often 102° or 101°. History of three weeks' illness of an indefinite nature. The only sign discoverable was an indefinite systolic apical bruit, indefinite because the child was anaemic and the heart was neither irregular nor enlarged. The cutaneous tuberculin test was negative and the urine normal. Her brother, who was in another ward, had a similar illness. She finally recovered, and the most likely cause of the illness was rheumatism.

Perhaps, whilst dealing with rheumatism, I might mention that, though in cases of osteomyelitis the localizing signs are usually sufficient to establish the diagnosis at once, still I have seen cases in which the pains near the joints and the fever led to a diagnosis of rheumatism.

Again, the eruption of erythema nodosum is often preceded by an irregular temperature and pains in the limbs, while poliomyelitis may give rise to fever and pain, and, if no symptoms of paralysis supervene, the diagnosis is obscured.

Leukaemia and Hodgkin's Disease.

These diseases may run a chronic course with exacerbations, during which there is high fever. In both conditions there is usually sufficient evidence in the way of glandular or splenic enlargement, but this is not always the case, and the lesson to be learnt is that, when in doubt, the blood should be examined. There are not always marked changes in the blood, but sometimes a diagnosis can be cleared up in this way. For example:

B. T., aged 5; illness began one week ago—weakness, irritability, vomiting, and headache, with a temperature of 100° to 101°. The temperature gradually rose irregularly until it reached 105°. On examination Kernig's sign was present; there was no *tache cérébrale*; the heart and chest were negative, but the liver and spleen were big. This led to an examination of the blood, and on the result of that lymphatic leukaemia was diagnosed.

In this case the illness with high temperature had been a source of considerable worry to the medical man in attendance, and only the examination of the blood definitely established the diagnosis, though the large spleen pointed strongly to acute leukaemia.

I have also a case, F. R., aged 3, of Hodgkin's disease, in which the temperature was irregular, often reaching 101° and 102°, and the glands, though obvious enough, were not readily distinguished from other forms of adenitis until the case had been watched and the temperature had been irregular for nearly one month.

Bacilluria.

I now come to an obscure cause of fever to which I wish to draw special attention—infection of the genito-urinary tract with the *Bacillus coli communis*, either in the form of acute pyelitis or in a less severe form of bacilluria. I shall deal almost entirely with those cases occurring in infants or very young children. Perhaps I can best illustrate the condition of pyelitis by describing the two cases which first drew my attention to the importance of recognizing this infection.

Girl, aged 11 months. Illness began four days ago with a temperature of 104° and vomiting; temperature sustained and stools foul, but soon became normal. Blotchy, dull-red erythema on face, and few pustules on buttocks and groin. Child seems quite comfortable, but shows slight tenderness in the left kidney region. Pulse 144. Urine foul but plentiful. No specimen available. Child curiously quiet and happy, but

* A paper read before the Manchester Medical Society.