to which I have already alluded, show that oxidising processes within the kidney are not slack. The observation of Onimus is more to the point: that the ligature of a large artery instantly raises by one degree the temperature of the blood hurled against the obstruction.

Before leaving this part of our subject, I may just remark, with regard to the actual amount of heat produced by the animal machine, that Helmholtz reckons that a man of 180 pounds' weight, under ordinary circumstances, generates in twenty-four hours an amount of heat which would raise 11,000 pounds of water one degree Fahrenheit. In other words, the heat which he sets free would raise a weight of water equal to his own sixty degrees.

The second division of the subject, the ways by which we lose our heat, shall not keep us long. Cold ingesta, air and food, are an obvious cause of loss of heat to the body. The same may be said of radiation and conduction from the surface. Evaporation of water from the skin and lungs abstracts a large quantity of latent heat. Radiation and evaporation from the skin are very variable quantities, dependent upon the state of the skin as to vascularity, and upon the state of the atmosphere as to heat and moisture. But, the evaporation from the lungs is much more constant, inasmuch as the air within the lungs is almost invariably saturated with watery vapour. The frequency of the respiratory movements is the chief means by which loss of heat from the lungs is regulated. The remaining causes of loss of heat are less important. Liquefaction of the solids of the food probably absorbs some heat; also certain processes of hydration and dehydration, such as Berthelot has pointed out. The separation of carbonic acid from the blood; the synthesis of the more complex molecules of the body, hæmoglobin and the plasma of muscle and nerve; also the casting off of imperfectly oxidated matters, epithelium, milk, sebaceous matter, kreatinin, hippuric acid, and so on; all these must be means by which the actual or potential heat of the body is diminished.

But when we pass from the animal at rest to the working animal, we light upon a new and active source of loss of potential heat. Yet, inasmuch as contracting muscle generates heat at the time of contraction, and also the cardiac and respiratory movements are increased, the actual temperature of the body is raised by exercise. And just as work is a loss of potential heat, so this formation of heat by exercise is a loss of potential work. To paraphrase Mayer once more:—"The production of work and heat are antagonistic; hourly experience teaches this. To go far, we start slowly; haste makes waste. The workman seeks to lessen sweating, thereby to husband his strength; no horseman likes his horse to become warm. In common life we say, no work should be carried to the sweating point; in scientific language, the increased production of heat is at the expense of the power to work. With the same consumption of force, it is the cool phlegmatic man who labours to the greatest profit."

And, lastly, with regard to another form of force—electricity—Paul Bert has made the interesting observation upon the torpedo, that repeated discharges of electricity lower the temperature of the body. Potential heat is lost as free electricity.

THERAPEUTIC MEMORANDA.

THE EFFECTS OF SANTONINE.

THE instance recorded by Dr. Sieveking, of santonine producing urticaria, is, I should think, unique. I have frequently administered it for the *ascaris lumbricoides*, which infests, principally, I believe, the jejunum, with unexceptional success, and generally order it to be taken on an empty stomach, in a small quantity of a semi-fluid vehicle, such as arrow-root. I am not aware, however, that it possesses any efficacy in *ascarides*, as Dr. Sieveking has stated. It is said that santonine is only soluble in the alkaline secretions of the small intestines, where its active and bitter principle acts as a vermicide. In several instances patients, both children and adults, have complained sometimes of nausea and giddiness, as well as a yellow tinge imparted by vision to surrounding objects, similar to that assumed by the salt itself when exposed to the light for any time.

In these cases I have noted that none of the parasites were expelled, the remedy having been taken on suspicion of their presence, or after their expulsion, which sometimes occurs spontaneously or after the administration of some other drug.

Lacock, Wilts.

J. H. CRISP.

LECTURES ON DERMATOLOGY.

DELIVERED AT

The Royal College of Surgeons of England.

By ERASMUS WILSON, F.R.S.,

Professor of Dermatology in the College.

LECTURE V.

ECZEMATOUS affections are entitled to the fullest share of our attention, as being the most numerous and probably the most important family of diseases of the skin, and as including all the more common forms of cutaneous disorder. Thus we have seen eczema represented as a simple inflammation of the skin, manifesting its operations by an erythematous, a papulous, a vesicular, an ichorous, a pustulous, and a squamous lesion, each of these lesions being accompanied by one or other of the rest in a greater or less degree. Next, we have seen the papular type of eczema in a separate form, and the pustulous type of eczema also in a separate form—the former of these receiving the name of lichen, and the latter that of impetigo. Then I have endeavoured to explain that the chronic stage of eczema, when the principal remaining lesion is exfoliation of the cuticle in small fragments or scales, has received the name of psoriasis and pityriasis; and, moreover, that an eczema resulting from the presence of a parasitic animalcule, the *acarus scabiei*, is denominated scabies. In this manner we have had presented to us six terms of common use in relation with dermatology; namely, eczema, psoriasis, pityriasis, scabies, lichen, and impetigo. Every one of these terms represents a well-defined form of disease; and, although all the forms of disease so represented are of the nature of eczema, and are members of the group of eczematous eruptions, yet each has peculiarities of its own, which render their separate consideration a matter of convenience.

It may be remembered, however, that I took occasion to except from the eczematous family two forms of lichen; namely, lichen planus and lichen urticatus, both of which are sufficiently well marked to take a position by themselves, and in some future classification to be allied with some other group; for example, lichen urticatus with urticaria, and lichen planus with a group founded on the follicular pathology of papulæ. The distinction between follicle and non-follicle opens up a very interesting field of inquiry in relation with cutaneous disease. It may be stated in general terms that the papillary portion of the skin cannot be inflamed without participation, to a certain extent, on the part of the follicle; but the reverse of this proposition is not equally true, for folliculitis in a great variety of forms may exist without a similar participation of the interfollicular papillary layer. The evidence of this fact has been before us in the instance of polymorphic eczema, in scabies, and especially in eczema papulosum and lichen. In eczema papulosum, the pathological state of the follicle is one of simple hyperæmia and consequent infiltration, and therefore comes under the denomination of *dry eczema*; but we also find in relation to the follicles a state corresponding with *moist eczema*. If an excoriated surface in eczema ichorous may be closely examined, the follicles may be seen giving exit to a transparent lymph in considerable abundance; and in the purulent stage of the exudation the excretion may be opalescent and puriform; so that the same language that we have heretofore held with reference to eczema in general may be applied separately to the follicles, which in the eczematous family present us with an erythematous, an ichorous, and a purulent form of folliculitis.

With the exception of eczema papulosum and lichen, the state of the follicles is most prominently brought before us in impetigo, which in its pathognomonic form is a purulent folliculitis. It is this pathological structure that gives to impetigo its limited and fixed character. It is never so extensive as common eczema, but evinces a disposition to develop itself in small circumscribed blotches—impetigo figurata; and it is very commonly met with as an affection of single follicles—impetigo sparsa—particularly in the region of the scalp and upon the face, where the follicles are larger than elsewhere. As the term "catarrhal inflammation" has sometimes been applied to eczema by way of illustration, we might with equal truth make use of the term "catarrhal folliculitis" in reference to impetigo as a similar illustration.

And here it becomes necessary to say a few words on the subject of a special characteristic of impetigo; namely, crusts. The copious exudation of impetigo dries on the surface, sometimes under the cuticle, and at other times, where the cuticle has been removed, on the excoriated surface; and it necessarily presents some variety in colour, in thickness, and in density. In colour it may be grey, or of an amber tint, or yellow, in various degrees; and when the exudation is mingled with blood, it may also be reddish, or brown, or even black, while the thickness and density of the crust will be determined by the quantity and degree of inspissation of the excretion. The Greeks undoubtedly had this affection in view when they made use of the term "*melitagra*", the honey-affection, from the general resemblance of the crusts to a paste of honey dried upon the skin.

Having now completed a preliminary and discursive sketch of the eczematous affections, let us transfer our thoughts from the pathological theatre to the consulting-room or to the bedside, and direct our attention to the treatment of eczema, beginning with the local or proper surgical medication of the disease. The local symptoms in all the various forms of eczematous affections are essentially the same, differing only in quantity and degree, and the same principle of treatment is therefore applicable to the whole. The chief of the symptoms are heat and itching. Our patients will sometimes speak of burning and scalding, and sometimes of tickling, creeping, and biting, as if from the agency of animalcules in the skin. These symptoms necessarily destroy comfort and repose; they are aggravated by rubbing and scratching, and before very long they increase to a degree to become intolerable, and either give rise to constitutional disorder or augment any constitutional disorder which may have existed before.

Such is the case which is now brought before us. What shall be done to alleviate or remove these symptoms? We may assume that which is apparently self-evident, that the symptoms are due to inflammation of the skin; therefore the question narrows itself into a sphere of very limited extent. Let us fall back on a very familiar illustration—the erythema or eczema which sometimes accompanies the use of appliances for the treatment of wounds, of injuries, where a limb or a portion of skin has become irritated by the application of dressings or bandages, or by the contact of discharges; or let us set before the mind another common example of inflammation of the skin, namely, erysipelas. The inflammation is one and the same; the remedy—at least in principle—should be the same also; and one and all will be equally soothed by the use of the dredging-box.

It is necessary to bear in mind always that the skin in a state of inflammation is in a state of irritation; and all our acuteness should be directed to the very matter-of-fact and common-sense object of avoiding to increase that irritation by the remedies we employ. A sound and practical aphorism has been attributed to Boerhaave, "*Abstine si methodum nescis*"; and, in the language of Hippocrates, we must "*do good, or, at least, do no harm*". But it is clear that, while we are obeying the first indication of palliation by means of the farina tritici, we can certainly do no harm with our remedy, while we may be giving the greatest possible comfort to the patient, and taking the first proper step towards cure. Of a nature akin to the farina tritici, and more pharmaceutical in its character, is the amyllum tritici or wheaten starch, which may be employed alone or in combination with oxide of zinc, and with or without the addition of camphor. Besides flour and starch there are one or two other powders which have also their merits, although they take a secondary place—for example, Fuller's earth, oatmeal, and the seeds of the lycopodium.

We may sometimes find our patient beforehand with us in the use of these remedies, and we must be careful how we attempt the substitution of an application that may not be so successful. On the other hand, we must be prepared for the occasional mortification of making the discovery that the medicaments, which with much care and thought we have prescribed, have given rise to unbearable irritation, and that the patient has only obtained relief by employing a remedy derived from the kitchen in lieu of that from the pharmacy. I cannot too often repeat that the skin, under the influence of inflammation, is an organ, frequently, of exquisite sensitiveness and of excessive irritability, and demands our utmost anxiety and care in its management.

It may occur to us sometimes to inquire, What are the properties which we desire our remedy to possess?—a not unwholesome question. Well, at the present early period of the disease, and at the palliative stage of our treatment, we may say: We want a coating of protection to a morbidly sensitive and highly irritable surface, and the material of the coating must be perfectly unirritating. Such an application we had in the farina tritici, and also in the amyllum tritici; but, as we may find a difficulty in securing the adhesion of these powders to the surface, let us see what else can be done: let us take of lime-water half a pint—and lime-water of itself is an excellent remedy, and sometimes the only

application the eczematous skin will bear—but we will thicken the lime-water by the addition of oxide of zinc and calamine powder, of each three drachms; and we will give to the inspissated fluid a certain adhesiveness by the addition of a drachm of glycerine. Here, then, we have an excellent lotion which we may paint over the inflamed skin, with the certainty of its unirritating property, and with the assurance that it will deposit a coating on the eruption which will act as a defence against external friction, and particularly against the irritant properties of the atmospheric air.

I wish it were unnecessary to add as a caution that the material of our remedies must be of the very purest kind, and where this is not the case we may be defeated in our object, and, with loss of reputation to ourselves, lose faith in our remedies and lose faith in our faith. On the other hand, it must be admitted that we may sometimes fail with the most excellent materials, particularly where we are wanting in a sufficient familiarity with their use.

Powders and desiccative remedies are adapted for the early stage of eczema, whether in its erythematous, its papulous, or its vesicular forms, and are sometimes equally applicable to erythematous complications of the other forms, or are useful in drying the skin when in a languid, damp, and exuding state; but their especial value is shown while the outbreak of an eruption from internal causes is still progressive, and where the skin is too irritable or sensitive to bear other remedies, and especially ointments.

It is a maxim worth remembering, that, where a remedy agrees with the skin, it will be proper to leave well alone; and if the powder just mentioned or the lotion relieve the burning and itching, and the redness subside under their use, we have no need to seek further; but if, on the other hand, the disease move onwards a stage and assume a more chronic character, especially if the itching and dryness or exudation put on a more decided form, we shall be in want of another application, and in this case we shall find none so appropriate and so much to the purpose as the benzoated ointment of oxide of zinc. There are certain remedies which would seem to be so intimately associated with forms of disease that they come to the mind with the mere mention of the disorder. This is the case in the instance of scabies and sulphur, syphilis and mercury, chronic syphilis and iodide of potassium, gout and colchicum; and such remedies, absurdly enough, have the reputation of being specific, as though the remedy could act independently of the control of the constitutional power of the individual. But if the word *specific* have any signification whatever in reference to the diseases just named, the benzoated ointment of oxide of zinc certainly has that claim in relation to eczema. There is scarcely a period of the career of eczema in which it is not the best remedy that can be employed, with the sole exception of the earliest outbreak of the affection.

THE EXTERNAL USE OF DIGITALIS.

IN the JOURNAL for March 4, Dr. Handfield Jones has referred to the external use of digitalis. From my experience, any doubt as to the efficacy of this mode of employing certain drugs arises from its imperfect application. Ordinary fomentations, as recommended by Christison (*Dispensatory*, art. *Digitalis*), exert but little power. In August last I saw a severe case of renal dropsy (in consultation with Mr. Butler of Guildford) in a gentleman from whom he had removed a great part of the inferior maxillary bone, which was necrosed. From various causes, no good results could be obtained from the internal administration of medicines. I advised the application of one ounce of the tincture of digitalis sprinkled over a large piece of spongio-piline wrung out of boiling water. This was applied in the evening. During the night there were excessive vomiting and occasional syncope. Mr. Butler was called early in the morning, and found the patient pulseless and in a state of great prostration. After the free administration of brandy, he rallied.

To confirm the supposition that the severe symptoms arose from the digitalis, in the course of a week I asked Mr. Butler if he would administer half an ounce in the same way, but he declined, alleging his conviction of the powerful effects of the drug thus used. Cases are reported by Dr. Reynolds and Mr. Jenkins, in which poultices of digitalis-leaves, applied to the abdomen in "*suppression of urine*", gave the most satisfactory results. In our case, there was little or no diminution of the fluid from the one application. In a case of severe abdominal pain, arising probably from a cancerous state of the bowel, I am using the wet warm spongio-piline bandage, sprinkled with tincture of aconite and solution of opium. It gives great relief.

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