only three children were examined, their ages being 3, 4, and 5 respectively. In the child of 3 years both tubes measured 3 centimètres in length, in that of 4 years both were 4 centimètres in length, but in that of 5 years the right measured 6 centimètres and the left tube 5 centimètres. The thickness of the tube at the ampulla measured 3, 4, and 5 millimètres respectively in the three children. The isthmus measured 1 millimètre in the two younger children, and 2 millimètres in the older child. In all the three the ostium abdominale measured 1 millimètre in diameter. The ovarian fimbria measured 5 millimètres in the youngest child, and 10 millimètres in the other two. The interspace, which was smooth, measured 5 millimètres in the two younger, and 9 millimètres in the older child. In these children the isthmus was straight in two, and slightly wavy in the third; the ampulla showed the same twists as in the infants, and the fimbriae were in these children, as also in the fetuses and infants, ill-developed and scantily clothed. Under the microscope cilia on the mucosa were carefully looked for, but they were only seen in one specimen, and that only at parts. The cells lining the tubes were more cubical in character than in the adult. The submucosa was present, was cellular, with a slight admixture of fibrous tissue, and stained deeply with picrocarmine. The muscular coat showed appearances similar to those in the infant, with less fibrous tissue and with a few longitudinal fibres lying internal to the circular fibres, and resting upon the submucosa. The areolar layer under the peritoneum was loose, and showed blood vessels and a few isolated longitudinal muscular fibres.

In the adult the appearances of the tubes have been already described, but there were minor histological differences in nulliparae, multiparae, etc., which we hope to describe at some future time.

The senile changes in the tubes were found to consist in narrowing and straightening of the canals, with a loss of curvatures, atrophy of the muscular fibres, more especially the longitudinal ones, which, in a woman of 76, were all but absent; conversion of the submucosa into fibrous tissue, fibrous changes in the mucosa, and obliteration of the tubal folds in the isthmus near to its uterine end. In the isthmus, also, the epithelium was found to be shed, and formed what might be called a tube cast, blocking the lumen. The areolar layer underlying the peritoneum was firmer, more fibrous, non-muscular, and more closely united to the muscular coat.

(To be continued.)

CASE OF RECURRENT TYPHLITIS; REMOVAL OF DISEASED VERMIFORM APPENDIX; RECOVERY.

By T. PRIDGIN TEALE, M.A., F.R.S.,

Consulting Surgeon to the General Infirmary at Leeds.

EARLY in October I was requested by Mr. Raynes, of York, to see Mr. P., a cricketer and football player, who was beginning to recover from a fourth attack of inflammation in the region of the cæcum. My advice was that as soon as all acute symptoms had subsided he should come into the Leeds Infirmary with a view to operation.

History.—In November, 1889, during a game of football, he was "tackled" round the waist and thrown to the ground. No harm seemed to result, but in March last he was seized with pain in the right iliac fossa for the first time. The pain soon passed off, but returned the next day, and continued with increasing intensity for about three days, when a tender swelling was discovered in the iliac region. At the end of three weeks the attack subsided. There had been neither sickness nor constipation. Six weeks from the commencement a tumour could be felt on deep palpation in the right iliac fossa. At the end of seven weeks he had a second attack, much like the first, which lasted three weeks. After a week's convalescence a third attack set in, which practically kept him an invalid, unable to work, until the fourth and most severe attack in the beginning of October, about which I was consulted. The lump found after the first attack could be felt in the intervals, but was now obscured by the tympanitic state of the abdomen, the body being "as hard as a board."

At this time no tumour could be felt *per rectum*. There was great tenderness over the iliac region, and the bowels acted with difficulty. Seeing that he had been practically an invalid and disabled from following his employment for six months, that he had been almost constantly in pain during this period, that the attacks increased in severity and in the tendency to obstruction of the bowels, and that there was a persistent hard swelling to be felt in the situation of the cæcum, I decided to operate.

Operation.—October 13th. The patient being under ether, I made an incision about 4 inches long directly over the tumour, in the line advised by Mr. Treves in his most instructive paper published in the *BRITISH MEDICAL JOURNAL* for November, 1889. The incision, passed obliquely inwards and downwards between the umbilicus and crest of the ilium, and ended a little above and to the outer side of the middle of Poupart's ligament.

On opening the peritoneal cavity the tumour was reached easily, and consisted of adherent omentum and small intestine surrounding a harder centre. By dint of great care in separating, tying, and dividing the adherent omentum, and in gradually disentangling adherent bowel, the imprisoned vermiform appendix was cleared of all adherent structures, and fully exposed. A catgut ligature was applied a quarter of an inch from the cæcum, and the enlarged appendix was cut off one-third of an inch from the ligature, the end of the stump being invaginated and stitched. After due cleansing and washing out by boiled water, and the introduction of a drainage tube, the wound was closed by stitching together first the edges of the peritoneum, and afterwards the muscular and cutaneous sides of the wound. The drainage tube was removed in forty-eight hours. Recovery took place without a drawback, and he was allowed to sit up in three weeks and two days. Eight weeks after the operation, he was perfectly well, was recovering from the anæmic state to which he had been reduced, and had entirely lost the pain which for six months had rarely left him. His report of himself on December 17th is: "I am able now to take the same meals as the rest, and also to walk two or three miles a day without feeling tired or any the worse for it."

THE PARASITIC NATURE OF PSORIASIS; ITS TREATMENT BY MERCURY.¹

By E. D. MAPOTHER, M.D., F.R.C.S.I.,

For many years I treated psoriasis by mercury, under the belief that it was an atavistic manifestation of syphilis; but, remembering that no other manifestation concurs, that it does not appear in the earlier and has been delayed till the later years of life, and that while the psoriatic are very many, the offspring of the hereditarily syphilised are very few, some other view had to be substituted. The dates of development also threw doubt on the suggestion that it was an hereditary blemish; and, indeed, the number of cases in which descent can be traced has been much overrated; for instance of 267 cases tabulated in *Guy's Hospital Reports*, other members of the families are recorded as being affected in only 36, and of 335 patients of Dr. Bulkley anterior heredity was proven in only 33. Then, no diathesis or condition of life seems to control the malady.

Greatly preferring to act on even the suggestion of a rational principle than empirically, I read with true pleasure Lang's assertion that the disease was parasitic. Not being a sufficiently expert histologist to decide between the eminent ones who differed, I had to be content with a full study of the evidence for and against the existence of the epidermidophyton, and reflections on the analogies between psoriasis and diseases positively parasitic, such as *tinea versicolor* or *circinata*, and presumably so such as syphilis and leprosy. From these latter it plainly differs in attacking the skin only.

As to proofs of communicability, we have the statement of such an observer as Unna that a nurse gave the disease to three children under her charge, and reliable records of its

¹ Read in the Section of Dermatology at the Annual Meeting of the British Medical Association held at Birmingham, July, 1890.

having been accidentally inoculated in the operation of vaccination, the subjects having had proneness, and intentionally on the human skin and on that of the rabbit. Into the latter animal it has been also introduced by the peritoneal stomata and by the blood. These points support the belief that the micro-organisms are carried in the circulation, not spread superficially.

I have seen dozens of spots come out in a day, which is more after the manner of an exanthem than of a local parasitic affection—for example, tinea versicolor. It strikingly contrasts with the exanthems as to recurrence; but this, however, may be due to reliance being so often placed solely on local treatment which could not affect the germs in the blood.

Psoriatic spots often creep on at the edge as they heal in the centre, but this character is shared by cutaneous lesions in which the microbe invades from without, as the tinea, or from within, as the syphilides. When two rings of psoriasis spread and touch, the healed centres are not invaded, as if the soil for the fungus was exhausted. Unlike many other forms of dermatitis, patches cannot be produced by mechanical injury unless the subject be already affected, and in such instances it is far more likely that the germs are attracted from the blood than carried over the skin, which may have its cuticle unbroken, or that they arise out of a latent local source. Psoriasis never appears over scars, owing probably to the altered capillaries of the injured papillæ not admitting the fungus from within.

Predisposition—that is, fitness of soil—would be transmitted by descent more readily than would the micro-organism itself, and the want of such proneness may account for the extreme difficulty of transmission. However, parasitism is not thus disproven, for another malady—tinea versicolor—is of this kind, and yet most rarely spreads to other individuals. Again, the want of success in cultivating these microbes is common to both affections. Although psoriasis prevails all over the world, it is very frequent and severe with the coloured races, amongst whom all parasitic diseases run riot. I have ascertained that many psoriatic patients have had in earlier life one of the tinea.

The following further considerations tend towards convincing us that the pathogenic parasite reaches the skin through the blood. The lesions due to microsporon furfur, microsporon minutissimum and trichophyton, which clearly invade from without, are not attended with dilatation of the vessels of the papillary layer. Such is, however, an essential feature of psoriasis, caused probably by the microbes blocking the capillaries, which here are normally narrow and free in communication with the lymphatics. The striking symmetry of the eruption points more to distribution of the microbe under the influence of the vasomotor and trophic nerves than along the surface, and a symmetry in the progress towards cure may be often observed during internal treatment by mercury. The fungus does not appear to be aerobic, the face and back of the hands being rare sites, which might be due, besides the action of air and light, to their frequent ablution, to their active capillary circulation preventing blockage, or to their thin cuticle not affording a fit nidus. Depressing influences, such as parturition, lactation, scanty food and mental trouble, which often appear to induce outbreaks in the predisposed, must clearly act through the system rather than locally. The sudden production of psoriasis from "*le choc moral*" recorded by French writers seems scarcely credible. During acute diseases, especially pneumonia, the hyperoxidation in the cutaneous capillaries has removed the eruption. The other internal remedies besides mercury which have been most successful—carbolic acid, iodide of potassium, and arsenic—are parasitocides, the last named having, at least as regards ague, that repute. Against its powers in conquering psoriasis (which I have always doubted), such a witness as Mr. Hutchinson can be cited; he gave it internally, while he applied to one-half the body an ointment of white precipitate and chrysarobin; on that half the eruption improved, on the other it did not.

The victory may be assigned to either of the local weapons; I, while declaring for the mercurial, acknowledge the powers of chrysarobin locally and also internally, for that parasiticide freely applied to one side of the body has, being absorbed, benefited the eruption on the other half. If arsenic

be a parasiticide, its external application should be useful, and, like other irritants, it would probably increase leucocytes which wage war on all microbes. These cells abound in psoriatic skin.

It is, however, very probable that the fungus may propagate from those remarkably common sites of it, the elbows and knees; in some cases the scaly disease has been in these scaly places alone for many months, and it is plainly desirable that persistent efforts to extirpate it should be made. The cutis in these regions has not a very active circulation, as the vessels dip plentifully into the periosteum, so close below, and the cuticle is thick and dry and laminated by the frequent movements of the joints. The old remedy—sulphur-fume (sulphurous acid) baths, which it was said prevented relapses—would act as a local parasiticide.

Even if it is only likely that psoriasis is due to a parasite, especially of the vegetal class, mercury—the destroying power of which all acknowledge—is deserving of the fullest trial. Its salts, as well as those of arsenic and silver, when taken internally, tend to the skin for elimination. This is most palpably so with regard to silver salts, for the few grains which have stained the whole skin could not do so if equally distributed through all the tissues. The mercurial compound will permeate the capillary blood vessels and lymphatics as well as the deeper part of the cuticle, in all of which situations we must suppose the microbes lodge and germinate.

The eliminative powers of mercury—diuretic, purgative, and cholagogue—may also act beneficially by deriving from the skin, and its influence over the vasomotor and trophic nerves is undoubted. It has been occasionally recorded that psoriasis has disappeared while mercury was being given for syphilis, for the one confers no protection against the other malady, another argument against their having any correlation. Relapses, which are at least 90 per cent. under mere local treatment, are much less frequent under mercurialisation, a statement which I regret I cannot support by figures. Out-patients with the eruption are so careless that it is very difficult to collect statistics.

In nearly every case mercury should be employed internally and externally. I have usually given three grains of blue pill every night for about eight weeks, the average time at which the eruption is removed being six weeks. The same cautions which one observes in treating syphilis are necessary, and as is then the case also, occasional interruptions and failures must be expected. Donovan's solution, a very favourite remedy, probably acts by the mercury it contains; in twenty drops, a usual dose, there is one-fifth of a grain of the biniodide.

Hospital patients with extensive eruption I have treated, after removing the scales by the usual means, by inunction into the eruption of diluted mercurial ointment, they being meanwhile kept in bed, and thus surrounded by an atmosphere of the metal. A small patch, if in a convenient site, may be often cured by covering it with the ointment and a piece of adhesive plaster on leather, carefully superimposed. In private practice ammoniated mercury—1 part to 7 to 14 parts of a mixture of lanolin and vaseline—forms a more suitable application, and the protoiodide is a good preparation for internal administration at the same time.

Calomel ointment was used by Colles and Crampton seventy years ago, when venesection was a routine remedy for psoriasis. It is not absorbed, nor does it excite hyperemia like other local applications, and must act as a parasiticide.

Diday has removed small spots in one or two weeks by applying the acid nitrate of mercury, and if the bichloride were used in the manner Dr. Reynolds, of Chicago, employs it in treating tinea, equal success might follow. He fixes on the positive electrode a sponge wet with a 1 per cent. solution, and finds that if pressed on the patches it will soak in very deeply. By the same device solution of cocaine may be made to produce anaesthesia of the deepest portion of the cutis, and Edison the electrician has proposed to treat uratic deposits in an analogous mode. Rochard's ointment (biniodide of mercury) has sometimes rapidly cured by setting up an inflamed state not unlike the kerion of tinea tonsurans.

Lastly, baths containing bichloride and sal ammoniac (1 part each to 2,000 of water) have been suggested, and if used with extreme care they seem to promise well.

Although I have professed so much faith in mercury, I do

not advocate neglect of other measures, for instance, any drug indicated by constitutional conditions which may concur, and daily baths to prevent relapses, for a healthy skin resists the invasion of any parasite, and a dietary composed largely of vegetable foods, the husk of the cereals being excluded, for in this way we could limit supplies for the keratin which is so excessively produced in psoriasis.

ON A FORM OF HYALINE DEGENERATION.

By ALEXANDER EDINGTON, M.B., C.M.,

Syme Fellow; Assistant to the Professor of Surgery, Edinburgh University; Lecturer on Bacteriology in the Edinburgh Medical School; and Lecturer on Comparative Pathology in the New Veterinary College, Edinburgh.

[From the Surgical Laboratory of the University of Edinburgh.]

Of late years the use of aniline stains for ordinary and pathological histology has gradually been growing in favour, and more especially is this the case where it is necessary to determine microscopically in a tissue the existence of a certain degenerative condition, for instance, the so-called amyloid change. Aniline stains have, however, certain grave disadvantages, inasmuch as they cannot be held, for all ordinary purposes, to be as certain in their effects as the older carmine and hæmatoxylin preparations. Their power of selection is not sufficiently definite, and hence their use has come to be somewhat restricted to special conditions and where it is desired to bring out certain bodies, which possess the power of retaining such stains beyond those of the surrounding tissues. To the bacteriologist they are invaluable, because one can stain with their aid micro-organisms deeply, and, by the use of alcoholic or other solvents, discharge it more or less entirely from the tissue elements, of which latter, the nuclei of cells seem to have a greater retaining power than the cell elements themselves. Owing to the fact, however, that such stains frequently stain degenerating particles in a more marked way than other stains do, those, whose lines of work do not ordinarily demand the use of such methods, are liable to be frequently puzzled by the pictures presented to their eye of tissues so stained frequently showing smaller or larger stained points. It is in this connection that I propose to detail the form, character, and, so far as I have been able to discover, the mode of production of certain peculiar masses to which Dr. Russell has applied the name of "fuch sine bodies." These are brought to view in certain tissues when stained with carbol-fuch sine, and seem to be of a hyaline nature, and have no relation whatever with fungi.

This form of hyaline degeneration occurs in certain specific inflammations as tubercle, syphilis, rhinoscleroma, etc., and also in certain new growths, and more particularly in those which are somewhat rapid in their formation. Of the latter, one finds in it lymphosarcoma, in scirrhus, and in epithelioma. It may also be present in others, but I have not, so far, had the opportunity of studying them in this connection. I shall speak of it as affecting: 1. The protoplasm of modified connective tissue cells; 2. the nuclei of such cells; 3. the protoplasm of cells of epithelial type; 4. the nuclei of such cells; 5. intercellular material.

The stain which I have made use of is that recommended by Dr. Russell, and is used as follows: First, a saturated solution of fuch sine in a 2 per cent. aqueous solution of pure carbolic acid. This stain is best made by heating the carbolic solution slightly, so as to dissolve a full amount of fuch sine, and when this has become quite cold, so that the excess of fuch sine has crystallised out, it may be filtered, and is then ready for use. Secondly, a 1 per cent. solution of iodine green in a 2 per cent. aqueous solution of carbolic acid. This is used as a contrast stain which stains the undegenerated tissue elements. The method of use is to take the sections from water to the carbol-fuch sine, in which they are allowed to remain for ten minutes, when they are to be washed for a few minutes in water, then transferred to absolute alcohol for half a minute, and then placed in the iodine green solution for five minutes. From this they are then taken and rapidly dehydrated in absolute alcohol, cleared in clove oil, and then mounted in Canada balsam.

In the case of scirrhus cancer, so stained, one will find that

the healthy cells and their nuclei are delicately stained with iodine green, but very numerous cells will be found to have begun to degenerate, and others will be found in a very advanced condition of disintegrative change. All points of degeneration take on a fuch sine staining—very brilliantly in the case of the advanced, less so in the more recent, while in the case of nuclei, which are only taking on the change, it may be found that their staining is by a mixture of both the stains used. The onset of the condition evidently is irregular in its order of production; in many cases the nucleus is the first to undergo this change, and in such conditions the cell will be found to contain a spherical, or nearly spherical, body, whose nature at first it is difficult to reconcile with that simply of a degenerated nucleus, but a careful study will demonstrate its mode of formation from such a source so clearly that all doubt as to its true nature will soon be set aside.

Fig. VIII.—A cell from scirrhus cancer in which degeneration is far advanced, and in which hyaline grains are seen.

Fig. IX.—A cell in the early stage of degeneration in which the nucleus has been first affected.

Fig. X.—A cell in a very advanced stage of degeneration.

In some cases the change overtakes a nucleus when in active division and when it consists, for the most part, of a mass of chromatic nuclear fibres. In such a case one can trace the onset of the change in these fibres, as the portions degenerated take on the fuch sine stain. In connection with this latter condition one may find, scattered here and there throughout the tissue of a scirrhus cancer, bundles of faggot-like bodies, which at first glance look like bundles of bacilli. Their nature, as the broken-up chromatic fibres of a nucleus, can, however, be easily made out with a good lens. The occurrence of degeneration of the protoplasm in the cell presents some peculiar features. As the change progresses, the nucleus may take on a definitely spherical form, or it may undergo a pathological segmentation, whereby a considerable number of smaller bodies are scattered throughout the cell, which take on a brilliant fuch sine stain. Such bodies in this situation are not, however, always derived from the nucleus, but may be deposited within the cell by degeneration of its own protoplasm. In other cases the cell is evidently filled with semifluid contents, amongst which numerous spherical globules of this hyaline material may be found. These masses, wherever found, vary considerably in size, in some cases occurring in large masses which have long been familiar objects to bacteriologists, while in in other cases they are of small size. Of the nuclei, the chromatic filaments of epithelial and endothelial cells seem to withstand the degenerative process longest. In the case of epitheliomata, we find the degeneration manifesting itself in two distinct conditions. First, that in which we find one or more small masses included within a cell; and secondly, that in which we find foci or clusters of very beautiful spheres which stain brilliantly of a pink colour. These two conditions are independent of each other, and the latter is peculiar to epithelial tissues.

In such a tumour one finds modified connective tissue cells undergoing changes which as a rule start in the nucleus, but not constantly so, while in the case of cells possessing epithelioid characters the nucleus, as has been said, seems to withstand for some little time. The appearances so far presented in such a tumour are quite analogous to what has been spoken of as occurring in scirrhus cancer. The appearance of foci