secondary deposits it was thought best to watch its progress for a short period before resorting to operative procedure. The wisdom of this decision was subsequently proved by the slow but steady decrease in the swelling, and the unexpected repair of the fracture. The changes, in fact, so far as the callus was concerned, were regressive and reparative, not progressive and destructive, as in carcinoma, &c. It will be observed that the ataxic symptoms present were those which mainly belong to the pre-ataxic stage and were such that had the ocular and Westphal's symptoms been neglected the ataxy must have remained undiagnosed. Another noteworthy feature was the rapidity with which the callus was thrown out, for immediately after the second fracture when carefully examined by Mr. Claremont, the surgeon to the out-patients, no abnormal excess of callus or osseous material was observed. Yet forty-eight hours afterwards (July 3rd) when I first examined him there was then found a very excessive formation of callus as recorded in the notes. This fact becomes of special interest when we consider Buzard's statement, previously referred to, regarding the rapidity with which the joints are sometimes destroyed in these cases.

For permission to record this case I am indebted to Mr. Rundle, under whose care he was admitted, and for many of the notes to my friend Mr. Cooke, the dresser to the case. Portsmouth.

OIL OF TURPENTINE IN EGYPTIAN ENDEMIC HÆMATURIA (BILHARZIA HÆMATOBIA).

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My attention was first drawn to endemic hæmaturia about five years ago. Since that date I had seen six cases, three of which I had under close observation for some time in the hospital, affording me a good opportunity of studying the disease and trying different methods of treatment. I am induced to give the results of this study with the hope that they may be useful to the surgeons of the British army now in Egypt, where they may have occasion to see and treat the disease. I shall first give the notes of my last case, in which the oil of turpentine produced a complete cure, and then offer some remarks on the general nature of endemic hæmaturia and its parasitic origin.

B. M.—, a well-made young man, aged twenty years, and a native of Egypt. He was admitted into the hospital on June 2nd, 1882, and gave the following history of his case:—When he was twelve years of age he began to feel pain in voiding his urine, and wetted the bed every night. Four years ago he observed a small quantity of blood passing with his urine, or soon after it, and always with some pain. Latterly he had passed water about seven or eight times a day. At night he invariably had incontinence of urine and unconsciously wetted the bed. His strength was fair, but he was not able to sustain much or long-continued physical exertion. On his admission there was only a slight trace of anæmia, and with the exception of his urinary trouble he complained of nothing else. During his stay in the hospital the urine was examined frequently, often daily, and with the blood, ova and free embryos of the bilharzia were at first always and plentifully found. In other respects the urine was not much changed from the normal state. Soon after his admission he was prescribed large doses of quinine, taking the first day sixty grains, and forty grains on each subsequent day for five days. But there was no change in any of the symptoms, and the blood passed was as full of ova and living embryos as before.

On June 14th I ordered a teaspoonful of oil of turpentine with a little milk three times a day, and this treatment was continued to July 8th. The blood was examined almost daily, and I was gratified to observe that in a few days it presented only broken ova and what appeared to be the debris of dead embryos. On the 25th the blood ceased, the nocturnal incontinence of urine stopped, the strangury was less, and the calls for micturition were diminished.

On July 8th he seemed to be perfectly cured. There was no blood, no ova in the urine, no strangury, and no incontinence, but there was still abnormal frequency of voiding

his urine. At this date the oil of turpentine was stopped. He had taken it for a little more than three weeks. He was retained another week in the hospital for further observation, and was dismissed on the 13th. I saw him again about six weeks afterwards, and he reported himself perfectly well, with the exception of a slight pain in passing his water. I examined his urine, and found it quite normal.

Remarks.—Though endemic hæmaturia has been long recognised as a distinct variety of bloody urine, its true nature and connexion with the parasite was discovered in 1851 by Bilharz, a professor of anatomy in the Egyptian Medical School, who, with Griesinger, found the worm in the portal, mesenteric, and vesical veins, thus accounting for the presence of its ova in the urine. Dr. John Harley and others saw and described a number of cases from the Cape of Good Hope; and Dr. William Roberts says that the disease has been identified in the Mauritius and Brazil. To this geographical distribution I can add Syria, at least the town of Jaffa, from which place I have seen one unmistakable case, and have heard of others there; but this is the only Syrian case I met, though I have carefully watched for the disease. Bilharz and Griesinger found the parasite in 117 cases of autopsy out of 363; and they believed that probably more than half of the native inhabitants of Egypt were victims of this disease. Sonsino found it in thirty cases out of fifty-four; and he believes that nearly all the natives of Egypt have it. The symptoms of the disease are few and simple, but well marked. The patient complains of passing a small quantity of blood, varying from a few drops to a teaspoonful, just at the end of making water, with a little pain, which continues for a short time afterwards. The frequency of micturition varies from half a dozen times to a dozen. There is always more or less anæmia and a sense of weakness after any ordinary exertion. The quantity and specific gravity of the urine are natural, but there is always blood, more or less of albumen, and an abnormal deposit of mucus. In bad cases the reaction is alkaline, and the sediment shows a number of crystals of triple phosphates, indicating some degree of chronic cystitis, for which the disease may be easily mistaken. The chief point of interest in examining the urine is the ova of the bilharzia, which are found in large numbers entangled in the clots, though they may be often seen free among the blood corpuscles. They may be detected by a low power, and can be afterwards examined with one moderately high. They are about $\frac{1}{170}$ of an inch long, quite ovoid in form, with a spike at one extremity, and once seen cannot be easily forgotten. When the ovum is carefully examined with a magnifying power of 250 or 300 diameters, the embryo is seen within it, having a distinct border of its own lying close to the egg-shell, except at the two extremities. In some of the ova, which appear to be in a more advanced state of maturity, but not in size, the embryo may be seen to expand and retract itself, probably in a fluid which lies between it and the egg-shell. Dr. Harley hatched the eggs by immersing them in water. A more expeditious way is to crush the egg and liberate the embryo by gently pressing the two glasses. This can be done while the eye watches the process from above, and it is interesting to see the egg broken and the living embryo emerging from the shell, and its cilia put at once into vigorous motion. Not unfrequently free embryos may be seen with their broken shells among the blood-cells, occasionally, in very fresh specimens, racing across the field with incredible velocity. The form of the embryo is also ovoid, not much larger than the egg, having a somewhat pointed extremity, which appears to be the head or mouth; and projecting from its sides from one end to the other are innumerable fine cilia, which appear to be always in motion, though the animalcule does not change its relative position. It is supposed that the embryo must undergo more than one transitional stage before it assumes its ultimate shape of the adult worm. The worm, which never comes out with the urine, is described by Bilharz as a filiform body measuring from three to four lines in length. The male is thicker than the female, and has a long canal into which the female is received during copulation. It inhabits the portal vein and its branches, and the vesical veins, and can be seen only after death in post-mortem examinations. Nothing definite is known of the diseases to which this parasite gives rise, except the hæmaturia above described. The mucous membrane of the intestines is said to be affected, occasioning dysenteric symptoms, and I have been told lately by a medical man from Egypt that in such cases he has sometimes brought down with the fingers from the rectum nodules

which were attached to the mucous membrane and which swarmed with ova. He has assured me also that the spine of these ova was lateral while that of the urinary ova was terminal. If this should be so, it would account for the statement of Bilharz and Griesinger as to some of the ova having lateral and others terminal spines, which has appeared strange to those who have, like myself, studied only the hæmaturic form. All seem to be agreed that the source of the parasite is infected and unfiltered water; and Sonsino adduces in support of this opinion the fact that Europeans and well-to-do natives never use the water of the Nile unfiltered, and are therefore exempt from the disease, while the lower classes use the water as it comes from the river and suffer accordingly. But I am not aware that anyone has seen the animalcule in infected waters. As a prophylactic measure it is suggested by Harley and Sonsino that drinking water should be conveyed in covered channels to prevent contamination by the excreta of persons infected with the parasite, that it should always be filtered, and that vegetables and fruits should be washed with filtered water before use. How the entozoon penetrates the bloodvessels and finds its natural habitat there is still a mystery. The size of the adult worm and of its ova and embryos precludes the idea that they can be carried through the capillaries or even through the smallest arteries and veins. In one of my cases I once opened a vein in the arm, but found no traces of the parasite in the blood. If the ovum or embryo be the starting-point, it is difficult to understand how they can enter through any part of the absorbent system into the bloodvessels. Dr. Harley supposes that during bathing the leech-like animal may lay its eggs through the skin into some superficial vein, or more likely find its way into the bladder through the urethra.

The case recorded above is the only one in which I succeeded in obtaining apparently a perfect cure. The drug used was oil of turpentine, given in teaspoonful doses three times a day, and continued for about three weeks. I had employed in my previous cases every method which I had read of, or which suggested itself to my mind, but without the slightest effect on the disease as such. When strong tonic medicines were given the general strength may have been slightly benefited; but the examination of the urine revealed in every case the persistence of the parasite. Among other things I tried ten-minim doses of oil of turpentine, with the same quantity of extract of male fern, and carbolic acid, by the mouth and hypodermically, for some weeks, until the system was thoroughly saturated with it, and the urine became smoky. Injections with one-scruple doses of iodide of potassium into the bladder, as recommended by Dr. Harley, I never employed as far as I could wish, and the result was abortive. But in the case he mentioned it does not appear that the success was all that could be desired, for "the patient still passed a few eggs . . . and the ova were in a more lively condition."

P.S.—I should have preferred to delay this communication until I might have had another case for testing again the efficiency of the oil of turpentine; but in the present circumstances, when the disease is attracting so much attention, I thought it my duty to publish the only case of cure by medicinal treatment, so far as I know, and to leave to others, who are now seeing the disease, the opportunity of repeating the use of this drug, and finding out whether we have in it a real specific for endemic hæmaturia.

Beyrout, Syria.

VOLUNTEER AMBULANCE INSPECTION.—The annual inspection of the Ambulance Company of the Tower Hamlets Rifle Brigade took place on the 29th ult., at the Headquarters, Hoxton. The class numbers thirty members, two or more men being taken from each company of the regiment for instruction in ambulance duties and stretcher drill. The Company was commanded by Surgeon Platt, assisted by Acting Surgeon A. O. White. The inspecting officer, Surgeon-General McKinnon, A.M.D., who was accompanied by Surgeon-Major Don, A.M.D., having witnessed the exercises of drill and stretcher duty, with the application of tourniquets, splints, and bandages, expressed himself as highly satisfied with the inspection. The result, he said, reflected great credit upon Surgeon Platt and the non-commissioned officers and men of the class; and he should have great pleasure in signing the War Office certificates of those members of the class who did not already possess them.

THE CLINICAL CLASSIFICATION OF BACKWARD DISPLACEMENTS OF THE UTERUS.¹

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IT is a truism in medicine that for treatment to be successful diagnosis must be accurate. The backward displacements of the uterus, retroversion and retroflexion, are met with sometimes without symptoms, sometimes with symptoms; and in the latter case the symptoms, in different instances, differ widely in kind as well as severity. In some cases the symptoms are removed with striking rapidity and completeness by mechanical treatment, while in others the same treatment entirely fails to relieve. Clearly, therefore, all cases of backward displacement of the uterus are not alike; and before we can treat them with any approach to certainty of result, we must be able to make a diagnosis between those cases which require a particular treatment and those which do not; in other words, they must be classified.

The classification at present most in favour depends upon the shape of the uterus: whether it is bent or not; the sharpness of the bending; the greater or less difficulty of straightening it or keeping it straight. Such a classification of course implies that bending is the important feature of the cases to be classified. I believe that bending of the uterus *per se* is, as a rule, an unimportant condition. I have set forth the reasons which induce me to take that view, so far as dysmenorrhœa is concerned, in papers communicated to the Obstetrical Society of London; and therefore I need not here again defend it. I will only make these assertions: that there are many cases in which symptoms associated with retroflexion will entirely disappear, without any appreciable alteration in the shape of the uterus having taken place; and that there are many others in which mechanical treatment, perfectly successful so far as removing the flexion is concerned, fails to remove the patient's symptoms. Cases such as these are not exceptional, but quite common. Of course there are others in which the reverse is the case. But the existence of the former class of cases is enough to show that a classification based merely on the shape of the uterus is not an adequate one, not one which helps in the treatment of backward displacements of the uterus.

To make clear the principles upon which I think that distinctions should be drawn between different cases of backward displacement, I would ask attention to the circumstances in which such displacements occur, and the conditions upon which, in my opinion, the symptoms connected with them depend.

The essential abnormal condition which produces these displacements is yielding of the pelvic floor—that is to say, the muscles, fasciæ, fat, and cellular tissue, which form, as Dr. D. B. Hart has pointed out, a compact layer closing the abdominal cavity below. I see no reason for attributing them to an isolated alteration in any single structure; for it has been shown by experiment² that different component parts of the pelvic floor may be separately divided without producing descent or displacement of the uterus. When slight yielding of the pelvic floor takes place, one of the first results is that the mobility of the uterus is increased, and that this organ slightly sinks. The greater mobility of the uterus which the loosening of its supports obviously involves allows it to fall either forwards or backwards. If it were rigid, a falling forwards or backwards of its body would be accompanied with a relative elevation of its cervix in the contrary direction, seeing that the uterus is most firmly fixed at about the level of the os internum. Often this is what takes place, and then we have anteversion or retroversion, as the case may be. But sometimes, instead of altering its position in the manner described, the uterus bends, the body thus sinking without much change in the position of the cervix. Retroversion and retroflexion are

¹ Read before the Hunterian Society.

² Savage: *Surgery of the Female Pelvic Organs*, 1870, Pl. xi. Hohl (quoted by Aran): *Maladies de l'Uterus*, p. 980.