from diarrhoea for 12 months and on admission his urine was found to contain an appreciable amount of albumin. From the notes of his case it would appear that after a rigor his temperature had risen to 103° F., falling to 100° after a profuse sweating. It had then remained normal for a few days but a repetition of the rigors and sweatings had occurred. A consultation was held and the man was transferred to my wards for operation. Next day an exploring syringe was inserted in practically the same position as in the former case and pus having been found a method similar to the previous one was pursued. On exposing the surface of the liver a thin flaky pus was seen welling up from around the needle which had been left *in situ*; the wound was packed with gauze whilst the pleural sac was sutured off and the liver was fixed to the deeper planes of the wound. On opening the abscess, which was done immediately, not more than one and a half ounces of unhealthy-looking pus escaped. The temperature after the first three days fell to normal and remained so throughout his convalescence, which was uneventful. He was discharged to a sick furlough looking in good health but still with a small amount of albumin in the urine.

In the first operation when the pleural sac was opened the patient's condition from threatened respiratory failure became alarming from the action of the left lung being impeded by the pressure of the pillow beneath the chest and by the pressure of the abscess and from the presence of air in the right pleural cavity. He was turned over on his back so far as was consistent with the continuation of the operation and as soon as the cavity was shut off the breathing became normal. It is difficult for me—even if the second abscess was in existence at the time of the first operation and was overlooked, though the character of the pus it contained is against the view that it was of the same nature as that of the larger collection—to account for the disconcerting symptoms which intervened so suddenly while gently syringing the wound and partially obliterated sinus. Though it has been urged that liver pus is sterile, the entrance into the peritoneal cavity of carbolic lotion and abscess debris must have inevitably produced a more or less limited peritonitis, but the symptoms of peritonism readily disappeared under treatment with enemata and sulphate of sodium. Some small perforation may have taken place on the anterior surface of the liver, resulting in a localised abscess limited by adhesions. In the second case the numerous rigors, the high temperature, the profuse sweats, and the small size of the abscess and the character of the pus seemed to suggest a possible pyæmic origin, but the wound healed rapidly and there was no interruption of the apyrexia throughout the recovery.

Limited as my experience is in the operative treatment of hepatic abscess, I submit with all deference the opinion that it is not always advisable to rely on the use of any of the various special instruments—trocars and so forth—to the exclusion of ordinary surgical procedures, for frequently those cases in which efforts have been made for their treatment by the use of such specially devised apparatus have eventually to be submitted to an excision of a portion of a rib to insure efficient drainage. In the second case in which though the abscess was close to the surface of the liver there were no diaphragmatic adhesions and in which there was unhealthy pus welling up copiously around the needle, nothing but disaster, I think, must have followed the use alone of any form of trocar and cannula. And I venture to think that such stabs in the dark, or at least into an obscurity, are out of place in those cases which, unless there are extensive and firm adhesions present, a condition of which we can never feel assured without an incision, can only be satisfactorily grappled with by one of the accepted surgical methods.

My thanks are due to Major W. G. Beyts, R.A.M.C., Civil Surgeon W. Rice, and the late Civil Surgeon J. J. O'Halloran for their valuable assistance in these two cases.

ENDEMIC HÆMATURIA.¹

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THE following notes, founded on 65 cases of endemic hæmaturia which occurred amongst the troops in South Africa in 1902, are brought to notice for two reasons: (1) they throw some light on the incubation period of the disease; and (2) because a new line of treatment is suggested which offers some hope of a definite cure. Endemic hæmaturia has been observed for many years; both its frequency and the occurrence of vesical calculi were remarked on by the French surgeons during the invasion of Egypt by Napoleon, but it was not until 1851 that Bilharz discovered the bilharzia hæmatobia in Cairo. Since then it has been observed over practically the whole of the African continent, to which, with the exception of the Mauritius, it was thought to be confined; but lately cases have been reported from Arabia, Cyprus, Antigua (W.I.), India, and even in England, which would point to its having a wide geographical distribution; in Egypt it is a common disease and a fruitful cause of urinary calculi. In South Africa I have collected information which points to its being widely distributed, and cases have been traced to the Vaal, Orange, and Apis rivers, Pretoria, M'Nkandu, Newcastle, the Mooi and Klip rivers, Umzindin and Maritzburg, and streams at Middleburg, Cape Colony, and in the Transvaal, whilst in the Rustenburg valley it is truly endemic.

The bilharzia hæmatobia is a trematode worm in which the male and female reproductive organs occur in separate individuals. The male worm is of a whitish colour and measures about 16 millimetres in length; the female is about 20 millimetres long and lies in the gynæcophoric canal of the male with her ends protruding; the eggs, which it is stated can be distinguished in the uterus, appear in the patient's urine as bright, translucent oval bodies, with a smooth surface and a thin non-operculated shell, possessing a spine situated at one end. It is stated in the text-books that this spine is sometimes situated laterally, this being especially the case when the disease involves the rectum, and the ingenious idea has been advanced that this is due to the greater pressure exercised by the fæces as compared with the urine, but in the many fresh specimens I have examined I have failed to find an ovum with a spine situated laterally.

According to Professor Looss the lateral spine is caused by the egg not being able to take up its normal position in the oötype but whilst, as mentioned before, I have never discovered this lateral placement in fresh specimens, in those which have been mounted a shrinkage may ensue giving a false impression as to the true position of the spine. The ovum contains a ciliated embryo which can be hatched out by mixing some of the urine containing it with water, when it soon acquires a rapid movement, often changing its form. Should the embryos become hatched out in the urine they quickly die and even in water they quickly disappear; the longest period that they have been kept alive is about 36 hours. Sonsino, however, states that they penetrate the body of some species of mollusc which, becoming transformed into a nurse (or redia), produces in its interior a generation of larvæ which in their turn escape and enter the body of the definite host to become mature worms.

I have endeavoured to repeat the observations of Sonsino, but so far without success, and this portion of its life-history cannot be definitely settled; it seems more likely that the embryo itself enters the human host, there to develop into the young worm. That it gains access to its human host or to the monkey, in which it has been found, by means of drinking water is, I think, borne out by the following facts. 1. An epidemic occurred amongst the men of the 8th Hussars stationed at Pretoria in 1902. The camp was situated on the hills to the north-west of the town and it was the custom of the men to bathe in the spruit (Skinner's spruit) which ran along the bottom of the camp. 43 cases occurred and in all a history of having either drunk the water or bathed in the spruit was obtained. 2. Whilst monkeys undoubtedly drink, it is improbable that they ever bathe.

A RUSSIAN PIONEER INSTITUTION FOR DEAF-MUTES.—At the beginning of January, 1907, says the *Novoe Vremya*, it is proposed to call a pan-Russian congress of teachers and caretakers of deaf-mute children in commemoration of the introduction into Russia of the education of deaf-mutes for the first time, in the experimental school for deaf-mutes in Pavlovsk, founded 100 years ago by the Empress Marie Theodorovna.

¹ Summary of a paper read before the Transvaal Medical Society, Johannesburg.

3. Even when bathing a certain amount of water generally enters the mouth and nose and is swallowed. 4. The disease having occurred in men who had only drunk the water, the view that the parasite enters the body by creeping up the urethra or anus is, I think, hardly admissible and there is no other known example of an entozoon introducing itself except by the mouth. 5. Only a small percentage of the patients with the disease who have come under my observation suffered from veldt sores, disproving the theory advanced that the embryo gains access through such an abrasion.

The parasite having entered the human host makes its way to the portal system, where the worm can be found in the smaller veins; the prostatic plexus and veins of the bladder wall are a favourite site. The time which elapses between its entrance and the onset of symptoms, which we may call the incubation period, seems to be settled from the observations of Dr. Abercrombie, who was in medical charge of the 8th Hussars during the epidemic previously referred to and who kindly provided me with the following notes. During the time that the regiment was at Pretoria several young drafts were sent out direct from England and all in due course bathed in the spruit and as a result several cases occurred in young soldiers whose residence in the country had not been more than two months. The shortest period observed was one month and the longest two months; thus it is concluded that the average incubation period is about six weeks.

On the symptoms of the disease it is not proposed to dwell at length; the hæmaturia probably first calls the patient's attention to his condition, although even then he does not always seek advice, as Dr. Abercrombie knew of many men in the regiment who were performing their mounted duties and had never reported sick, yet were passing large quantities of blood. The complications are due to the mechanical blocking of the vessels or the irritation set up by the ova. The worm living in the vein discharges its eggs which work their way through the tissues into the bladder or rectum, as the case may be. Perhaps the most characteristic lesion is seen in the interior of the bladder, where rounded, projecting masses with a rough and granulated surface are found, the result of inflammatory processes set up by the deposit of eggs in the mucous and submucous tissues. The uterus may also be affected and in one case the patient developed epididymitis which could only be ascribed to a similar cause. The large intestine is a common seat and the bleeding, taken in conjunction with the polypoid growth, may lead to an erroneous diagnosis of piles unless a microscopical examination be made. The ova have been found in the liver and lungs, in which latter they may give rise to hæmoptysis, but are not usually in sufficient numbers to cause symptoms.

An examination of the blood in this disease shows that the number of eosinophiles is enormously increased—20 per cent. or higher. In ten cases in which I made a differential count they ranged from 6 to 20 per cent. This increase in eosinophiles is not peculiar to bilharzia but often occurs in all worm parasitic diseases; in trichinosis it may actually amount to 68 per cent. of a leucocytosis of 20,000. What its exact significance or cause is is doubtful; possibly it is due to the action of some toxin or secretion of the worm circulating in the plasma. In my experience the increase is less marked in cases which have persisted for some months. Another interesting point, not usually mentioned, is the presence of fat in the urine—the quantity is best estimated by Shoxolite's process; the largest amount found was 2 per cent., and at first it was thought that this bore a definite relationship to the increase of the eosinophiles but further observation did not bear out this view.

The question of treatment has now to be considered. Up to the present the treatment has been simply symptomatic, as any drugs that will kill the parent worm must necessarily destroy the host. Prolonged inhalation of chloroform or ether, extending over many hours, has been suggested, but to me seems hardly feasible; perhaps the best results have been obtained with methylene blue. Change of climate is often advised, but what is far more important is to prevent the risk of re-infection by only drinking boiled water, or water known to be pure, and the avoidance of bathing in infected streams. It has been suggested by Colonel Birt, R.A.M.C., that the use of a "toxin" in these cases should produce good results and this is borne out by the following facts. Two patients who were suffering from bilharzia contracted enteric fever and on convalescing the urine was found to be free from the ova, and during the time they were under

observation (some months) they had no recurrence of symptoms. At the post-mortem examination which was held on a native who died from dysentery and in which the bilharzia parasites were dissected out within two hours of death, the worms were found to be dead; there were well-marked dysenteric lesions of the intestines. The ascaris lumbricoides is almost invariably killed by acute infections. This seems to offer some hope of success in what must be either an incurable disease or one in which time is the only remedy.

The toxin might be conveniently administered by the hypodermic injection of Wright's antityphoid serum. It would not be necessary to give sufficiently large doses to produce a serum reaction, but a series of small doses might be tried which would cause little or no inconvenience. I have at any rate to suggest this treatment for your favourable consideration, as in severe cases the patients will gladly welcome any treatment which offers any hope of success. I have two patients undergoing this treatment, the result of which I hope to publish later. The question arises whether patients returning to England with the disease would be capable of spreading infection, but until Sorsino's observations have been confirmed and it has been shown that the mollusc or other intermediate host, or even the embryo itself, can live in the cold streams at home, it is a question that must remain unsettled, the general opinion being that there is no such risk.

A CASE OF AINHUM.

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THIS rare local disease occurred in a seaman, aged 44 years. He was a native of Jamaica and had been born in Port Antonio where he had spent his youth until he was 14 years old, at which age he had left home and gone to sea. When he would be about 24 years of age a slight excrescence appeared on the inner side of the flexor aspect of the minimus of the right foot in the flexure of the distal interphalangeal joint. This the patient treated as a corn and pared it down. It slowly grew again and the paring process had to be repeated. The growth was, however, exceedingly slow, so that months elapsed between the use of the knife. On making an examination of the feet, the little toe looked as though a hair or some fine ligature had been drawn tightly round the distal joint and had eaten its way into the flesh. This effect was heightened by the fact that the part beyond the constriction was much hypertrophied, being as large as a hazel-nut and lay doubled up underneath the proximal portion of the toe. The bridge of tissue connecting these parts together was very narrow. There were a slight amount of excoriation and ulceration at the flexure. The toe was freely moveable upon the bridge of tissue but rather painful. The hypertrophied portion felt tense to the touch. The man complained of the pain, which made walking uncomfortable, and asked to have the part beyond the constriction removed. This was done with a sharp pair of scissors and the hard fibrous tissue that composed the band of constriction did not bleed at all in the process. The other toes of both feet were carefully examined but no traces of any constriction were found.

The literature on the subject of this uncommon disease is not large; the only account of any length is to be found in Sir Patrick Manson's "Tropical Diseases." The description given there of the early stages agrees very closely with the foregoing account of this case. It appears to attack only the dark-skinned races and to begin usually with the little toe. It is rare in women and children and most common in adult males. There is nothing noteworthy in the pathology beyond hypertrophy of the adipose tissue which infiltrates the bone in the part beyond the constriction. The theories as to the true nature and cause of this disease are numerous. That it may be a trophic nervous disturbance is supported by the occurrence in some cases of severe loin pains in the earlier stages and by the hereditary tendency noticed by some observers. Leprosy, scleroderma, the wearing of toe-rings