A CASE OF STREPTOCOCCIC CONJUNCTIVITIS.

By H. H. B. CUNNINGHAM, M.D., F.R.C.S.I.,
M.R.C.S. ENG.,OPHTHALMIC SURGEON, ULSTER HOSPITAL, BELFAST; HONORARY
DEMONSTRATOR OF ANATOMY, QUEEN'S COLLEGE, BELFAST.

CONJUNCTIVITIS due to a pure or almost pure streptococcic infection does not appear to be a common disease, and in view of the virulence of the affection and the unfortunate termination of the case here recorded, one is thankful that these cases are not more numerous.

A. F., aged 2 years, was brought to the hospital on March 12th, 1907, the mother stating that the child had suffered from a sore eye (left) for the previous three weeks; the lids were glued together on some mornings, but this was not a marked symptom. There was an eruption on the face, dry in character, situated on the forehead, cheeks, and chin, which the mother stated had been there before the eye became affected. On examining the eyes, the right eye and its appendages were apparently healthy; on the other hand, there was a slight oedema of the left lids, palpebral conjunctivitis, but not very marked, and very slight injection of the ocular conjunctiva. The cornea and iris were healthy. There was a large swelling on the left side of the neck involving the parotid area, at first sight resembling the enlargement of the parotid gland seen in specific parotitis, but there were no symptoms of this disease present. The swelling had been there for three weeks and its appearance seemed to coincide with that of the sore eye, though this could not be definitely ascertained, the swelling was fairly hard, solid, and not painful on palpation, the preauricular gland was not enlarged, but a number of enlarged, hard, discrete glands were felt in the posterior triangles of the neck. There were no *Pediculi capitis*. The child was said to be "not so well" for the last two days, being somewhat drowsy. Two other children in the house were said to have been affected with "colds in their eyes," previous to the present child being affected. No history of tuberculosis nor of syphilis was obtained.

The case was treated as a catarrhal conjunctivitis, and ordered frequent applications of boracic lotion, the glands in the neck being looked on as that type of tuberculous adenitis so common in these children. Three days later the child was seen again, when the enlargement of the lymphatic glands and the swelling in the region of the left parotid gland was in a similar condition to that described above, the eruption in some parts of the face was becoming purulent, but now there was marked oedema of the left eyelids, which were a little red in colour, and which were markedly swollen; the palpebral conjunctiva was much injected, and the ocular conjunctiva was in a state of chemosis; on separating the lids muco-purulent discharge was found in the palpebral sac, the cornea and iris were clear and apparently unaffected. The right eye was not affected. Frequent application of warm boracic lotion to the eye and face, to be followed by boracic ointment, was ordered. Four days later the child was again seen, when the glandular enlargements were unaltered, the eruption on the face was less and cleaner, the oedema of the lids was a little decreased, but they were still red. On separating the lids free muco-purulent discharge was seen, being in greater quantity than on the previous date; the chemosis was marked, the whole of the cornea was cloudy; there was a large deep central ulcer in the cornea, with shreds of fibrinous lymph adherent to it, and which had apparently perforated, though this could not be made out with certainty owing to the chemosis and oedema of the lids, and the struggling of the child. There was also a large hypopyon half filling the anterior chamber, and the eye was lost.

A swab was taken from the palpebral sac, which, both under the microscope and in culture, gave the typical appearances of streptococci and that in almost pure culture.

This is a case which in its earlier appearances did not differ very materially from the ordinary acute catarrhal conjunctivitis due to Weeks's bacillus, and one often sees these cases complicated by oedema of the lids and chemosis. Again, as there was a semipurulent eruption on the face, an auto-inoculation at once suggests itself. Against this is the fact that the right eye was not affected during the whole course of the disease, and one would have expected to have found it implicated both in such a condition, and sooner or later in a Weeks's conjunctivitis; and further, in a purulent skin eruption it is usual to find more than one variety of micro-organism, and one would therefore expect to find some, at any rate, of these micro-organisms in an inoculation conjunctivitis.

This would, then, appear to be a streptococcic conjunctivitis *per se*, and which is evidently a rare disease, for many of the textbooks on ophthalmology make scanty reference to streptococci in their descriptions of conjunctivitis, and do not describe a similar condition to that given above; for example, Fuchs¹ only quotes M'rax as

stating that streptococci are found in cases of catarrh accompanied by lesions of the lacrymal sac. Inglis Pollock² on examining bacteriologically 362 cases of conjunctivitis only found the *Streptococcus pyogenes* in three cases, of which one was a case of ophthalmia neonatorum with Neisser's diplococcus, and the others were two old-standing cases of blepharitis marginalis in which large numbers of organisms, staphylococci, air bacilli and several indefinite bacilli and diplobacilli were found as well. This case does not appear to resemble that rare disease, Parinaud's lacrymal conjunctivitis, which is a streptococcic conjunctivitis, usually unilateral, in which there is swelling of the lids, and of the conjunctiva, especially the ocular; but also in which there is only slight secretion, the preauricular as well as the cervical glands are enlarged and tender, and in which the lacrymal sac is implicated; thus differing from the case described above. The enlargement in the parotid area and of the cervical glands suggests that type of conjunctivitis³ described by Parinaud in 1889 and which now bears his name; but in this disease, which is unilateral, granulations are found in both fornices; there is no supuration in the conjunctival sac, though the enlarged preauricular gland frequently breaks down and suppurates, and in which bacteriological investigation up to the present has been unable to describe the offending micro-organism.

Is an endogenous streptococcic conjunctivitis possible or probable in such a case as this? One doubts it. Parsons⁴ describes a pseudo-membranous form as a group of streptococcic conjunctivitis more frequently met with than Parinaud's lacrymal conjunctivitis, and in which the eye is frequently lost through corneal ulceration; he states that Coppez has collected thirteen cases from the literature, and quotes Uthoff as stating that the association of membranous conjunctivitis with impetigo of the face, in which latter condition large numbers of streptococci are present, is well known. Therefore, although no membrane or pseudo-membrane was seen in the case described above, one is inclined to place it in the category of those mentioned by Uthoff.

In conclusion, I would like to thank Dr. Wilson of Queen's College for kindly examining the swab for me.

REFERENCES.

- ¹ *Textbook of Ophthalmology*, by Fuchs; second American edition; 1905, page 48. ² Inglis Pollock, *Transactions of the Ophthalmological Society of the United Kingdom*, vol. xxv, p. 32. ³ Parinaud's Conjunctivitis, by Andrew Little, *Ophthalmoscope*, December, 1906, p. 681, and *Textbook of Ophthalmology*, by De Schweinitz, p. 290. ⁴ *Pathology of the Eye*, by Parsons, vol. 1, p. 38.

PRELIMINARY NOTE ON SOME BODIES FOUND IN TICKS—ORNITHODOROS MOUBATA (MURRAY)—FED ON BLOOD-CONTAINING EMBRYOS OF FILARIA PERSTANS (MANSON).

By F. CREIGHTON WELLMAN, M.D.,
BENGUELA, WEST AFRICA.

FOR several years I have been interested in the problem as to how *Filaria perstans* is transmitted from person to person, and on several occasions have made feeding experiments with a number of species of mosquitos and other biting flies (*Tabanus*, *Haematopota*, *Chrysops*, *Stomoxys*, etc.), and also with fleas; but, as was the fate of other observers, results were always negative. Never, with one doubtful exception, have I succeeded in getting developmental forms in such insects.

My failure to solve the question on the hypothesis that some haemophagous insect is the disseminator led me to make feeding experiments with ticks. My first attempts with these animals, made over two years ago at an altitude of nearly 6,000 ft. above sea level, were likewise negative for *Ornithodoros moubata*, *Amblyomma variegatum*, and *Rhipicephalus decoloratus*. More recently, however, working at a lower altitude and in a consequently warmer zone (about 4,000 ft.), I have succeeded in cultivating what appear to be developmental forms of *Filaria perstans* in one species of tick (*Ornithodoros moubata*), which feeds habitually on human blood. I have submitted specimens of my preparations to my friend and former teacher, Dr. George C. Low, and he writes me that he agrees with my opinion

that the embryos in the ticks used in my experiments are developmental filariae.

In my first experiments I used young ticks collected by my black boys in pig-sties, etc.; but, as the sources of fallacy under such circumstances were so obvious, I used the results thus obtained only as a suggestion for future work, and at once set myself to breed out young ticks from pregnant females, and have repeated all my observations, using young ticks that had never before sucked blood either from men or animals. Numerous controls were used to check all experiments.

As the dissection of the species of tick employed presents considerable difficulties, and section cutting of all ticks is well known to be very unsatisfactory, I have not yet satisfied myself as to all the details of development, which differs in some points from that of *nocturna* in mosquitos, notably in the much more rapid growth of the nematode during the first few days after its ingestion by the tick. The development seems to be practically complete at about the twenty-first to the twenty-third day, although the large forms may be obtained from the ticks for at least two months after that, and probably for a much longer period. When some time has passed after feeding, the embryos cannot be demonstrated except by pressure and rolling of the tick. This doubtless means that the worms bore through the walls of the digestive tract and go on to their further development in some of the firmer tissues of the host's body. Observations on these points and also regarding human infection are not yet complete, but from what I have already learned I am inclined to conclude that, as Dr. Low has already suggested to me in a recent letter, the parasite undergoes changes (analogous to those studied in other filariae) in *Ornithodoros moubata* as its intermediate host, and is then inoculated back directly into man, its definitive host.

One point the definite settlement of which has given me some trouble, and which led me to delay the publication of this paper for months after it was sent to London, was the possibility that the nematodes are natural parasites of the ticks which the controls (on account of slightly different environment, etc.) might lack the opportunity of acquiring; but numerous and extended experiments (some of which are difficult owing to danger of infecting controls through feeding to keep them alive), using ticks bred from eggs and also those from *perstans* districts and districts free from filariasis, seem to have disposed of the possibility that the age or environment is a factor in the infection of the ticks.

A detailed account, with drawings and other data, of the experiments here reported and those still in progress, together with the literature on the subject, will be presented in due time.

It is of interest to mention briefly in connexion with my work the observations of others.

Christy has suggested that *Ornithodoros* may be the host of *F. perstans*. He based his idea on the fact that his black servant, after being bitten with ticks, showed filariae in his blood which had before been free from them. I am not aware that he made any experiments to prove his point.

Feldman has claimed that man is infected with *F. perstans* through eating bananas. This author states that when ticks (he unfortunately does not give the species or even genus) suck the blood of natives affected with *perstans*, the worms undergo a certain development in the ticks, and then are deposited with the tick's eggs in ripe bananas, from whence they are carried into the alimentary canal of man. From this position he conceives that they bore their way into the tissues of the abdominal cavity, and develop into the adult form. These assertions are interesting, but the methods used to arrive at them are open to grave fallacies. I can glean from Dr. Feldman's paper no evidence that the ticks used were bred from eggs, or that any controls were employed, or whether the embryos found in bananas were proved to have any relation to the forms seen in ticks, nor, in fact, that any of the usual precautions used to eliminate error from scientific research were employed. On the other hand, my experiments with bananas have all been entirely negative. According to my observations, the ticks oviposit in the dust of the floor and not on bananas, which in this district are generally hung from the ceiling. It should also be remembered that the geographical distribution of bananas does not coincide with that of *F. perstans*, and that microscopic nematodes occur naturally in bananas.

To sum up: in view of my researches, so far I am inclined to the opinion that the intermediate host of *F. perstans* (Manson) in tropical Africa is a tick, *Ornithodoros moubata* (Murray), and that the cycle is probably (as in the case of other filaria carried by insects) direct,

from man to tick and from tick back to man. In British Guiana, etc., where *perstans* is also found, some other member of the genus—for example, *O. turicata*, *O. talaje*, etc. (which are natives of South America)—possibly plays the same part as *O. moubata* in Africa.

In conclusion, I wish to record my indebtedness to Dr. Low for criticisms, suggestions, and encouragement during the course of a long and tedious series of experiments.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

IODINE AND TYPHOID FEVER.

ABOUT six years ago I employed for the first time the internal administration of iodine in the treatment of enteric fever. I was led to do so by having read an article in the *Journal de Médecine* as far back as the year 1859. My cases are not many, but the results in some have been so striking that I venture to bring my experience of such treatment before the profession. That iodine has a marked and beneficial influence in typhoid I am convinced, be the explanation what it may, and if administered from the beginning it acts almost like a specific, shortening the duration of the illness, which in some cases would appear to abort, and modifying favourably most of the symptoms.

How does iodine act? Modern research shows it to stimulate the formation of white corpuscles necessary to the defence of the system (phagocytism). It renders lymphoid tissue active, and Peyer's patches being of lymphoid nature it may have some specific action on them the moment it enters the circulation.

The way in which I have administered it has been in the form of *B.P.* tincture, 3 to 15 minims diluted in 3j or 3ij of rum or cognac in about 1 or 2 oz. of water with a little sugar. This is administered three or four times in the twenty-four hours.

Puerto Orotava, Teneriffe. GEORGE V. PEREZ, M.B.Lond.

SIMULTANEOUS DISLOCATION OF BOTH SHOULDERS.

THE publication in the *BRITISH MEDICAL JOURNAL* of July 6th, page 20, of a case of the above, reminds me of an exactly similar case that I met with, quite ten years ago, in Sydney, New South Wales.

A woman, aged about 45 or 50, was climbing a step-ladder in her house one night, when she missed her footing and fell heavily on the floor. She was picked up and placed in bed, and was seen by me very shortly afterwards. She had both shoulders dislocated, and there were absolutely no other injuries.

London, W.C. M. J. LYDEN, M.D., Ch.M., R.U.I.

A FIFTEEN PINT HYDROCELE.

THE patient in the following case, a Gold Coast native, aged 30, presented himself at the Addah Hospital with his scrotum enormously enlarged and hanging below his knees. At first sight it appeared to be a case of elephantiasis or lymph scrotum, but on closer examination the swelling proved to consist of a small double inguinal hernia and a left hydrocele. The penis was buried in the scrotal tissue; the testicle could not be located; that on the right side was rather enlarged. From the history disclosed it appeared that the man had had a right inguinal hernia for eight years. This hernia was followed after two years by a left hydrocele, and this again by a left hernia. The scrotum having been carefully cleansed, the hydrocele was tapped and a measured quantity of fifteen pints of fluid removed, in addition to about half a pint which was unavoidably lost. The fluid was yellow, specific gravity 1020, cloudy from a cholesterine plates, and a few leucocytes, alkaline in reaction, and was almost solid with albumen on boiling; no spermatozoa were to be found on microscopical examination.

I have no data to refer to here, but I think that this quantity of fluid in a single hydrocele must be almost a record. After tapping, the left testicle could be felt as a