REVIEW

OF SOME OF THE

RECENT ADVANCES IN TROPICAL MEDICINE

HYGIENE AND TROPICAL VETERINARY SCIENCE, WITH SPECIAL REFERENCE TO THEIR POSSIBLE BEARING ON MEDICAL, SANITARY AND VETERINARY WORK IN THE ANGLO-EGYPTIAN SUDAN

BEING A SUPPLEMENT TO THE

THIRD REPORT OF THE

WELLCOME RESEARCH LABORATORIES

AT THE

GORDON MEMORIAL COLLEGE

KHARTOUM

BY

ANDREW BALFOUR, M.D., B.Sc., F.R.C.P. EDIN., D.P.H. CAMB.

DIRECTOR

Fellow of the Royal Institute of Public Health, the Society of Tropical Medicine and Hygiene, and the Society for the Destruction of Vermin; Member of the Incorporated Society of Medical Officers of Health, and the Association of Economic Biologists; Corresponding Member Société de Pathologie Exotique; Medical Officer of Health, Khartoum; etc., etc.

AND

R. G. ARCHIBALD, M.B., R.A.M.C., ATTACHED E. A., PATHOLOGIST AND ASSISTANT BACTERIOLOGIST

Fellow of the Society of Tropical Medicine and Hygiene

PUBLISHED FOR

DEPARTMENT OF EDUCATION, SUDAN GOVERNMENT

KHARTOUM

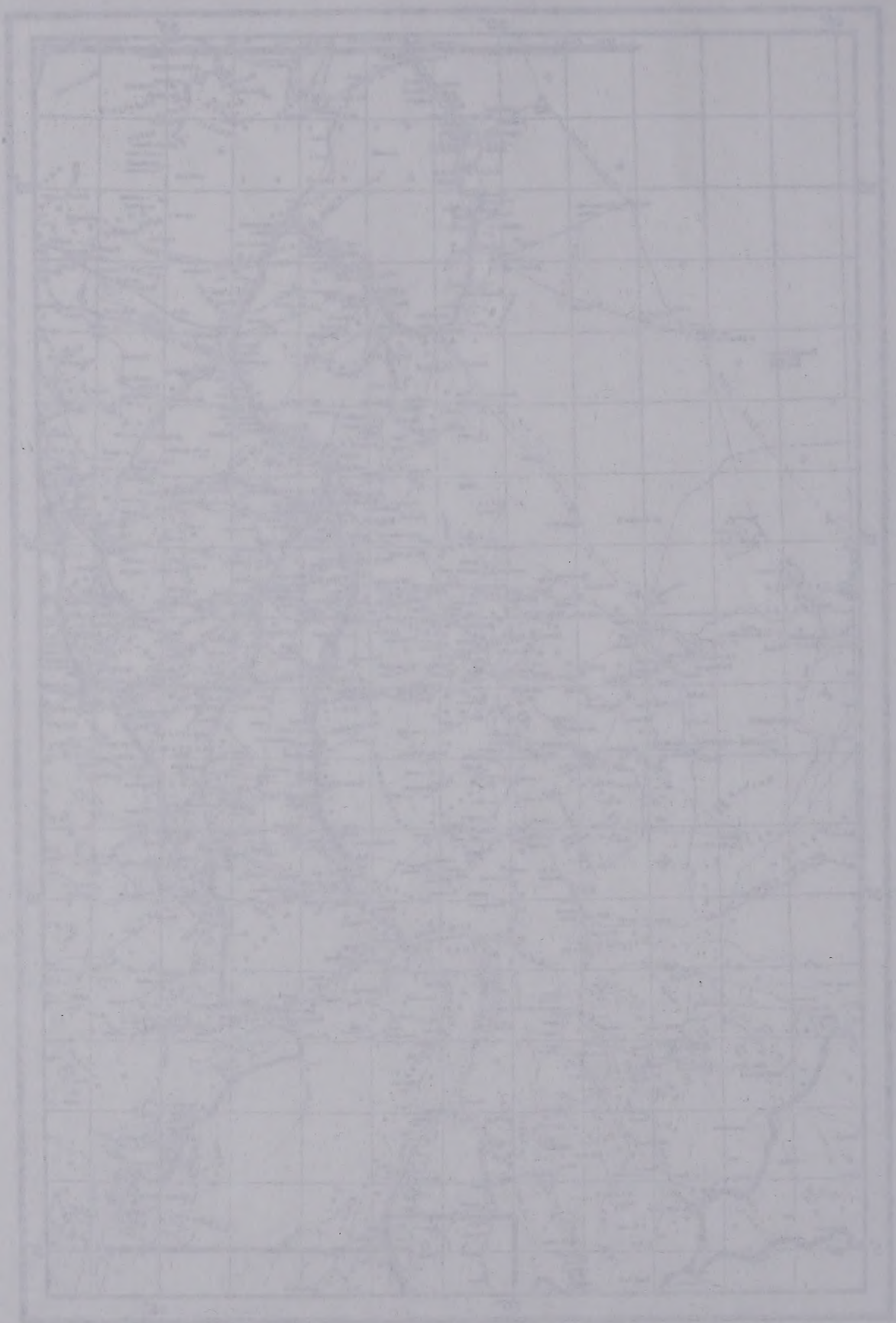
BY

BAILLIÈRE, TINDALL & COX, 8, HENRIETTA STREET, COVENT GARDEN

LONDON

1908

Map of Anglo-Egyptian Sudan



Onyalai— *continued*

more tropical and humid regions of the Sudan, such as the Bahr-El-Ghazal Province, it is perhaps well to direct attention to it, the more so that Feldman has seen a somewhat similar disease in East Africa called "Edjuo," and Mense, on the Congo, met with a condition exhibiting some of the symptoms of "Onyalai" and termed "Kafindo" by the Unyamwezi people.

The etiology is quite obscure. Wellman seems to have proved that it has nothing to do with malaria, trypanosomiasis, Schönlein's disease, Henoch's purpura, Purpura hæmorrhagica, accidental or intentional poisoning or snake bite, though it may resemble the effects produced by the bite of the puff-adder (*Clotho arietans*, Gray).

Wellman, indeed, considers the disease to be a specific entity, an acute infectious disease, the cause of which is as yet undetermined.

The account given of the clinical features is here reproduced :—

Most of my cases were attacked suddenly. Lassitude and a sort of dazed appearance was generally marked. In some cases the parotid glands were tender to the touch. The eyes appeared heavy and sometimes reddened. In most instances the tongue was swollen and painful. A slight temperature was noted in about a third of the cases. I have had patients complain of numbness and of pain in various parts of the body. One man who had bloody diarrhœa suffered much from colicky pains. The appetite is usually poor. The bullæ may appear in the mouth, pharynx, œsophagus, stomach and bowels. Vomiting of blood is not rare. The skin also usually shows lesions. The genito-urinary system was affected in three of my cases. Hematuria was a prominent symptom in all of these. When the process occurs in the cranial cavity various symptoms of profound central disturbance are set up. Three cases of this kind have come to my attention. One of these was a young woman in rude health. She was laughing and playing on the evening of her attack. Suddenly she complained of being tired, and in an hour or so bullæ appeared in her mouth. She steadily grew more depressed, and died about eight o'clock the next morning, with all the symptoms of cerebral hæmorrhage, *i.e.* loss of consciousness, inactive, dilated pupils, slow, noisy, stertorous breathing, etc. The pulse was very slow and increased in tension. Another fatal case in the same house, a strong young man being the victim, presented almost exactly the same symptoms. A third fatal case showed no vesicles, either in the mouth or in the skin. The fæces and urine likewise contained no blood. Another case which I have also referred to this disease likewise showed no vesicles, but died from the effect of what I believe to be the same process in the liver, spleen and pancreas. (These last two cases were shown microscopically not to be pernicious malaria.) The superficial bullæ, when present, are characteristic. They range from the size of a split pea to several inches in diameter. The larger ones are irregular in outline, and are often umbilicated. They are deep, and involve the corium or submucous structure. There seems to take place an extensive histolysis, only the fibrous elements persisting. These appear as trabeculæ, the interstices of which are filled with partially coagulated and otherwise altered blood which shows dark under the skin or mucous membrane. The red corpuscles, however, are not all disintegrated, and may be seen under the microscope in the oozing from the blebs, and also in the fæces, urine, saliva, etc., according to the situation of the lesions. In one or two cases the bullæ were very small, and not numerous, and had the patients not directed attention to them would probably have been overlooked.

The Congo disease described by Mense[1] is characterised by depression, malaise, headache, reddened conjunctivæ, numbness, swelling of the tongue, loss of appetite and occasional bloody diarrhœa, dyspnœa, cardiac disturbances, etc., all of which have been noted in "Onyalai." Bullæ, however, were not observed.

The prognosis of "Onyalai" is still an unknown quantity. The malignancy of the disease appears to vary greatly. Natives often regard it as very fatal. No treatment seems of much use, except possibly arsenic in large doses.

Information is desired regarding the possible occurrence of this interesting condition within the confines of the Sudan.

Oriental Sore. So far as one can find out, this condition does not exist in the Sudan. Colonel Hunter, P.M.O., tells me he has never seen it. At the same time, it is one of much interest, and as it is associated with the presence of parasites identical with the Leishman-Donovan body, and as kala-azar occurs in this country, it is necessary to consider recent work upon it.

In a recent important discussion on the subject, Manson[2] points out that the disease has the peculiarity of being protective against itself. He also alludes to the difficulty in stating the duration of the incubation period, which is sometimes short, but frequently runs into months. Nearly always an exposed part of the body is affected, and Manson suggests that the disease is inserted by some animal which attacks these parts. The bug, flea and similar insects are therefore excluded. The mosquito and various flies would, however, probably be effective carriers. The disease is inoculable, but inoculation experiments may fail possibly because the parasites have disappeared from the sore or are in an unhealthy condition or have undergone involution.

---

[1] Mense, C. (1906), Handbuch der Tropenkrankheiten, p. 789, Vol. III.

[2] Manson, Sir P. (December 2nd, 1907), "Demonstration of Oriental Sore and its Parasite." *Journal of Tropical Medicine and Hygiene*, Vol. X.

Oriental Sore—*continued*

He speaks to the morphological identity of the parasite of Oriental sore and that of kala-azar, and, in order to see if they were specifically identical, he attempted to inoculate a kala-azar patient from a case of Oriental sore. Unfortunately both the test inoculation and the controls failed. Manson believes Oriental sore to be a blood disease, and that if it be cured in one place it will break out in another. If, however, the disease is obtained in the involution stage, pressure and local application may hasten the cure. Low thought the disease might be due to a spirochæta, while Duncan mentioned a case successfully treated by the application of a disc of lead the same size as the sore. Sambon mentioned the liability to recurrence and the outbreak of successive crops of a peculiar eruption after the appearance of the first sore. He also alluded to the fact that the disease, which was one of towns, occurred in dogs, and that in their sores the characteristic parasite existed. Hartigan mentioned that many of the Jews in Hong Kong suffered from the disease in unexposed parts, a fact which Manson explained, as far as the Jews in Baghdad went, by infection during childhood which was the time of life when the body was not generally covered in hot climates.

Fremantle regarded the condition as a local infection, not as a general disease. Manson, in reply, stated that as Duncan had applied the lead compress after five months' ineffective treatment a cure might be expected as the disease was exhausted and inclined to heal spontaneously.

Cox[1] has a good paper on the Baghdad boil which is a disease of cities or rather of streets which are not properly laid and scavenged. The only method of prevention is to disinfect or cauterise thoroughly any cut, wound, abrasion or mosquito bite immediately on its occurrence. He describes the minute papule increasing in size and finally becoming the ulcer of which there are two types, the male and female, so-called :—

(1) The male ulcer is oblong in shape, like a date seed, hence the name of "date-mark," with an irregular, undermined edge and indurated margin: it is tender on pressure, with a dry uneven surface, and it is extremely indolent in character. The ulcer either remains stationary in size or it gradually enlarges, sometimes attaining a diameter of two inches: as a rule, the size varies from that of a hazel-nut to an inch in the wider diameter. On reaching its permanent size, the sore retains its characteristic appearance and soon forms a dry pustular scab, which increases in size in successive layers, until it becomes a nodular crust, when it drops off, leaving the raw surface of the ulcer bare, and then the scabbing starts afresh.

(2) The characteristics of the male ulcer apply also to the female ulcer, and the only difference is that the latter, instead of forming a dry scab, is forever discharging a pale yellow, watery pus, which adds to the distress of the patient. Both kinds leave a permanent scar.

For treatment in the late stages he recommends strong sulphur ointment (20 per cent.) applied on resin plaster with a layer of wool on the top to graduate the pressure of the bandage: this is applied daily for four or five days until the surface of the ulcer looks clean. Then Unguentum Picis is applied until granulations appear. These are touched with blue stone and an ordinary dressing of boric ointment is applied. Healing occurs in from one to six weeks. Arsenic in medium doses helps the cure.

Donovan[2] suggests that the itch insect, *Sarcoptes scabiei*, may be a vector, as he noticed several sufferers from Oriental sore covered with itch.

The parasite was first seen by Cunningham, but was rediscovered and described by Wright, who named it *Helcosoma tropicum*. His description, method of staining and account of its histology will be found in quotations given in the *Indian Medical Gazette* of August, 1904, and the *Journal of Tropical Medicine*, May 16th, 1904.

Billet[3]* found a case originating at Ismailia and presenting Wright's parasite. He suggests that *Anopheles chaudoyei* may be the carrier, owing to its distribution, especially in Algeria where "Biskra boil" occurs.

A recent paper by Marzinowsky[4] gives a very full bibliography and enters more minutely into the question of treatment than is usually the case. He mentions various caustics and astringents which can be employed followed by dusting powders and finally by sublimate wash, but, considering that the healed sore leaves a permanent scar, he is all in favour of operation under cocaine anæsthesia. In those cases where this is not feasible he thoroughly

---

[1] Cox, W. H. (February, 1904), "The Baghdad Boil." *Indian Medical Gazette*, Vol. XXXIX.

[2] Donovan, C. (March, 1904), "Delhi Boil." *Indian Medical Gazette*, Vol. XXXIX.

[3] Billet, A. *C. R. Soc. Biol.*, t. LX., p. 1149.

[4] Marzinowsky, E. J. (December 24th, 1907), "Die Orient-beulen und ihre Aetiologie." *Zeit. für Hyg. und Infekt.*, Bd. LVIII., No. 2.

* Article not consulted in the original.

Oriental Sore— *continued*

cleans the sore and uses 10 per cent. ferropyrin solution to stop the bleeding. Thereafter the sore is well moistened with 50 per cent. solution of bimuriate of quinine and collodion dressing applied. The same procedure is repeated daily until complete cure results; at the same time, it is sometimes advisable to inject quinine into the periphery of the sore. By this treatment a complete cure usually results in from 7 to 11 days.

He also cites the recent work of Schulgin, who advocates freezing of the sore with ether. This procedure, tried in 300 cases, yielded very good results.

Two French papers may be cited, though they are mainly of a confirmatory nature, as regards the discovery of Wright's parasite.

Mesnil, Nicolle and Remlinger[1] describe it as discovered in Aleppo button, and Nattan, Larrier and Bussière[2] record its discovery in ten cases of Oriental sore at a place on the Persian Gulf. These last two observers examined the blood of their cases, but failed to find the parasite in the peripheral circulation.

Parasites. Under this comprehensive title one proposes to deal merely with general papers on metazoan parasites and such articles as have for their subject the consideration of new or little-known African forms likely to be encountered in the Sudan. We know very little about the metazoan parasites existing in this country, and yet, being so near Egypt and in such close communication with that "land of worms," as it may almost be called, there must be many species, while in the southern regions rare or unknown forms are certain to exist. It is a branch of study which would well repay attention, but for its proper elucidation a trained helminthologist is a necessity. It may yet be possible to arrange that such an observer should have the use of the Floating Laboratory and devote his time to the human and animal Entozoa of the Sudan. If so, much valuable information may be expected. At the same time Dr. Leiper's paper on the material collected by Dr. Wenyon, adds very considerably to our knowledge.

That the importance of the subject is now fully recognised is shown by a paper of Sambon[3] on the part played by metazoan parasites in tropical pathology.

Dealing first with recently-discovered entozoa, he alludes to *Necator americanus*, and then mentions the new strongyloid of man, *Triodontophorus diminutus*, of American origin, and possibly a cause of tropical anæmia. *Œsophagostomum brumpti* is another Sclerostome, found by Brumpt in the form of six immature females, in cyst-like nodules in the walls of the cæcum and colon of a negro in West Africa.

His remarks as regards the Schistosomidæ have already been partly recorded (*see* "Bilharziosis," *page* 17), but in this paper he mentions the finding by Christophers and Stephens of schistosomum eggs in the urine of a Madras native suffering from hæmaturia. These eggs differ from those of *S. hæmatobium* by their greater length and peculiar spindle-like shape.

Speaking of Looss's work, he mentions the removal of *Opistorchis sinensis*, the Asiatic liver fluke from the genus *Opistorchis* to the new genus *Clonorchis*, and recalls the fact that under the old term two separate species had been confounded. There is, then, a large form *(C. sinensis)* usually present in small numbers and comparatively harmless, and a smaller one *(C. endemicus)* always occurring in large numbers, and distinctly harmful. Both are found in China and Japan, and though their structural differences are very slight, Looss is convinced that he is correct in separating them, and in support of his contention cites two other trematodes, *Opistorchis felineus* and *Opistorchis geminus*, which must likewise be recognised as separate species, though not presenting the slightest difference in their structural organisation. *O. felineus* is a European species, inhabiting the liver of certain beasts of prey, especially cats, and occasionally man. It has never been found in Egypt, neither in man nor in canine or feline animals, both wild and domestic, though purposely looked for. *O. geminus* is a common parasite in Egypt. It inhabits the liver of certain birds, amongst them the common Egyptian kite *(Milvus ægyptius)*, which never leaves the country, and must perforce acquire the parasite in it. It is quite reasonable, therefore, to infer that the *Avian opistorchis* indigenous in Egypt,

[1] Mesnil, F., Nicolle, M., and Remlinger, M. (January 22nd, 1908), "Recherche du protozaire de Wright dans 16 cas de bouton d'Alep." *Bull. Soc. Path. Exot.*, Vol. I., No. 1.

[2] *Loc. cit.*

[3] Sambon, L. (January 15th, 1908), "The Part played by Metazoan Parasites in Tropical Pathology." *Journal of Tropical Medicine and Hygiene*, Vol. XI.