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## Sleeping Sickness

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II.—*Sleeping Sickness.*

By SIR JAMES GRANT, K.C.M.G.

(Read May 22nd, 1906.)

At present in England, the subject of Tropical medicine, is attracting widespread attention, and undoubtedly experimental medicine is responsible for the greatest advances which have come to light, within the past few years. The discoveries of Novy and McNeal, are of much importance, the first in fact to obtain pure cultures of protozoa, maintaining trypanosomas of different species, alive. The recent discovery during the past year, of protozoal parasites in the blood of different animals, in addition to many new species of trypanosoma, is of much interest, and more particularly owing to the close affinity of these discoveries, with Sleeping Sickness. So far as known, the first to observe "Sleeping Sickness," was Winterbottom, who wrote a brief paper in 1803, giving an account of the native Africans in the neighbourhood of Sierra Leone. The next reports of importance were those of Dumontier and Santelli in 1868, but by far the most important and accurate account, is by Corre, who studied the disease, in the natives of Senegambia. In 1891 MacKenzie recorded a case of "Sleeping Sickness" in the London Hospital, and in 1900 Manson, made a special record of two cases in Charing Cross Hospital, sent from "The Congo," by Dr. Grattan Guinness: Dr. Mott, the able neurologist of Charing Cross, worked out carefully, the pathological history, and defined the lesion as one of the nature of "meningo-encephalitis." Until within a limited period the geographical distribution of "Sleeping Sickness," was limited to West Africa. For some years, it has also been known in The Congo, as well as in several of the West Coast areas. In 1900 Cook discovered "Sleeping Sickness" in Uganda, since which date the disease has spread widely towards the north shore of Victoria Nyanza Lake.

From the various reports of local observers, the epidemic area of "Sleeping Sickness," is confined to parts of Equatorial Africa. On the Upper and Lower Congo, the disease has been noted in epidemic form, large numbers of the population falling victims to its influence.

As to the cause of this disease, many hypotheses have been propounded in explanation, such as an intoxication of food, animal parasites and bacteria. Since November 1902, Castellani frequently observed "trypanosoma" in "Sleeping Sickness," in fact he discovered trypanosoma in the cerebro spinal fluid of 20 out of 34 patients. Accord-

ing to Dr. Mott, the cerebro spinal fluid in "Sleeping Sickness," always contains trypanosomes, and likewise the juice of the lymphatic glands, by puncture during life. Also states (proceedings Royal Society 1905) "The evidence of the existence of trypanosomes in the blood of animals dying of trypanosoma disease, may vary very considerably."

Thus far there is a degree of doubt, as to the exact pathological condition, in "Sleeping Sickness" which only time and further researches can decide.

The disease first broke out in the Province of Basoga, where it is supposed to have been introduced by Emin Pasha's Sudanese and their wives and followers, settled in Basoga. This disease had been epidemic in The Congo country, hence the supposition that a certain number were suffering from "Sleeping Sickness" in its incipient condition. In this section of country, the disease assumed such a severe form, that in a short time, it reduced the population of Uganda to a minimum. The chief part of the nervous system influenced by it is the brain, the functions of which become gradually disturbed so much so, that the mental attitude of the patient is soon noticed by the relatives. No desire to work, but rather to rest, owing to headache and pains, more or less in the chest. This disease is quite frequent in the Focla country and more so in the interior, than on the sea coast, and strange to say, children are seldom affected by it. Those giving evidence of the disease exhibit a somewhat ravenous appetite, eating much more than when in usual health and gradually growing fat; this, however, lasts but a short time, as the appetite declines, and the loss of flesh becomes quite evident. Squinting and convulsions frequently occur before death. The presence of glandular tumours in the neck, are not uncommon in the incipient stage of development, and slave dealers avoid the purchase on that account, fearing the development of "Sleeping Sickness." The disposition to sleep is so strong that the desire for food is not marked. The whip, setons, or even blisters, fail frequently to arouse the patient from the lethargic condition, which is generally fatal in a few months. There is usually a dull, heavy, stupid look, and a characteristic slowness in answering questions, and a well defined shuffling gait. The temperature is remarkable, in the evenings rising to 101° F. and becoming sub-normal in the morning. During the intervals of examination, the drowsy lethargic condition steals on, and when he sits down the head nods, the eyes close, and thus he continues, and until again aroused and questioned. As to the final issue, much depends on whether the disease will develop an acute or chronic form. Tremors of the tongue and arms are not uncommon, the general reflexes become lessened in intensity, and drowsiness gradually lapses into coma, and the patient passes away in

a state of complete insensibility. In chronic cases, the symptoms are slower in development, but usually eventuate in a like fatal issue.

Sometimes preliminary symptoms of an exceedingly slight character, might be in progress for years, and in fact so feebly defined as to be almost sublatent until very gradually the symptoms deepened in intensity, when the gait, speech and food supply, entirely changed from the normal condition, gradually followed by profound coma and death. It is now generally accepted, that this disease is caused by the entrance into the blood of a minute protozoal parasite; the "*Trypanosoma Gambiense*," first described by Dr. Dutton, who while searching out this disease, lost his life on the West Coast of Africa. In South Africa there is a disease known among cattle and other domestic animals, caused by the "*Trypanosoma Brucei*," and conveyed by and communicated from sick to healthy animals, by a "biting fly," the *Glossina Moritans*. The idea followed that "Sleeping Sickness" might be produced in a like manner from a "Biting Fly." "Large collections of these biting flies were made with the remarkable result that the distribution of 'Sleeping Sickness' and of a biting fly, the *Glossina palpalis*, corresponded exactly with each other." Col. David Bruce, R.A.M.C., F.R.S., addressed the meeting of the British Association, on this subject during the recent meeting in South Africa, and brought to light many interesting facts, in this line of research which cannot fail to be of great service.

Sleeping Sickness is not contagious, and, in fact, is only considered infectious, in a limited sense. The disease is generally believed to be fatal, but in a few cases recoveries are vouched for.

Dr. Todd, of McGill University, recently returned from West Africa, having extended his observations over 2,000 miles of "The Free State," from the mouth of the Congo. He favours the idea that nearly all general glandular enlargements, without evident cause, such as syphilis or tuberculosis, are cases of trypanosomiasis. The palpation of these enlarged glands in the posterior triangle of the neck, is considered sufficient evidence of the disease. The juice of enlarged glands removed by the hypodermic needle, is unailing as to the production of trypanosomes, even when not found in the blood. Dr. Todd considers the sleepiness rather as a terminal sign, and not necessarily an unailing symptom of the disease.

Information has just been received (British Medical Journal, May 5th, 1906) that one of the commissioners sent out to Uganda in 1904, by the Royal Society of England, to investigate Sleeping Sickness, Sec. IV., 1906. 2.

has been infected with the parasites believed to produce the disease. Two officers of the Royal Army Medical Corps, Lieut. Gray and Lieut. Forbes Tulloch, were the commission. Last March an official telegram was received in London, that trypanosomes had been found in the blood of Lieut. Forbes Tulloch, and there is wide spread sympathy expressed for this young and zealous officer, suffering in the cause of science, and the members of the Royal Society of Canada, join heartily in the hope that he may make a safe recovery. Since the discovery of trypanosomes, the parasite has been recognized in seven persons of English birth. Of these, three have died, and four are still living. From most recent date, a proportion of recoveries is to be looked for, in the Trypanosome diseases of man, and that the terminal and fatal condition "Sleeping Sickness," is not inevitable, and although a necessary factor in the production of the disease, not always followed by its development, and much work has still to be done, before a positive opinion is arrived at, as to either the prognosis or treatment of this disease.

"Sleeping Sickness" has been considered by some experts a form of Beri-Beri. Such, however, is not generally accepted. Beri-Beri is in fact a peripheral neuritis, and developed rapidly. The knee reflex is absent in both, and hyperæsthesia of the muscular system, is a striking characteristic. In "Sleeping Sickness" these symptoms are wanting; the tremor, pyrexia and lethargy are marked features.

Professor Robert Koch recently investigated "Sleeping Sickness," for some months in South Africa, and favours the opinion, that this disease has been known on the west coast of Africa, since the beginning of the last century. Sir Claude de Crespigny, visited the hospital at Eutebbe, German East Africa, and considered that the disease is conveyed by the Tse-tse fly, only about two per cent disseminating the fatal germ. It is doubtful whether the disease emanates directly from the fly, or the latter conveys it from dead fish, and is spread like yellow fever, by mosquitoes. In large sections of Africa, the horse is not seen and cannot survive, owing to these insects, and the donkey at one time supposed to be immune, frequently succumbs, a victim to a like influence. Dr. Kock inclines to the opinion, that "Sleeping Sickness" is a form of cerebro-spinal meningitis.

The present interchange of commerce with the numerous tribes in South Africa, from Britain, and nearly all Europe, makes this disease an important problem, not alone, as to the economic future of South Africa, but also as to the outlook in the direction of public health.

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