A SHORT HISTORICAL ACCOUNT OF TSETSE IN
SOUTHERN RHODESIA

By

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INTRODUCTION.

I make no apology for again addressing the Society on the subject of the Tsetse fly, for few factors can have had a greater influence upon the history and development of Southern Africa than the presence or absence of tsetse.

In its presence pastoral people, with their herds, cannot exist; agriculture inevitably remains primitive. Without cattle no system of soil improvement or maintenance of fertility can be devised or practiced; without milk, problems of unbalanced diet and deficiency diseases occur. To the African people cattle mean wealth, a man's status amongst his people being reckoned by the size of his herds, and the number of his wives—purchased by cattle. Thus without cattle their whole economic system breaks down—for money was unknown and even now has not yet replaced cattle as a monetary unit. When our delicate monetary system breaks down, we can only fall back on the primitive system of barter and exchange, but if there was nothing to exchange, we might, under such circumstances, relapse into a state of primitive savagery analogous to the condition of some African tribes living in the fly areas.

Piled on top may come the dreaded scourge of sleeping sickness. Between the tropics some four and a half million square miles of country are infested with tsetse affecting the lives of some sixty-five million people. Of these, some seven million are examined every year for sleeping sickness, over 140,000 fresh cases being discovered and treated in a single year. The number of people dying of sleeping sickness each year is not known, but it may exceed 50,000 despite the efficacy of modern drugs and the labours of numerous specially equipped and well organized medical missions in the field throughout Equatorial Africa. Sleeping sickness in an epidemic form can depopulate a country as it did in parts of Uganda where some 200,000 people died of the disease between the years 1901-1904. On Bovuma Island, a population of 30,000 was reduced to 14,000 while some other islands of the Seshe Group were completely depopulated.

Fortunately, sleeping sickness does not occur to any extent in Southern Rhodesia, due probably to the sparse native population in the fly areas, and the lack of that intimate contact
and some fifty native cases of sleeping sickness in Southern Rhodesia since 1911, when the disease was first discovered in the country.

HISTORICAL REVIEW.

How much of Africa was infested with tsetse in the past can only be surmised, but probably, at any rate, within the last 5,000 years or so, little more than there is to-day. Certainly within that period there have been no fundamental changes in the climate of Africa as a whole. An equatorial rain and heavy forest belt bordered both north and south with a drier belt of savannah bush, with desert and scrub vegetation towards the extreme north and south appears to have been in existence for several millennia. It is hardly probable that tsetse existed outside this tropical zone except in a few localities where tropical or sub-tropical vegetation flourished as in Zululand to-day. No fossilised tsetse have been found in Africa, though many have been discovered, including four different species in the miocene deposits of Florissant, Colorado, America.

Of early written records there are few, though possibly a paragraph of Isaiah (Chapter VII., verses 18-19) may refer to the tsetse: “And it shall come to pass in that day that the Lord shall hiss for the fly that is in the uttermost part of the rivers of Egypt, and they shall come, and shall rest all of them in the desolate valleys, and in the holes of the rocks, and upon all thorns and upon all bushes.” The description fits a swarm of locusts rather than an invasion of tsetse.

Not only has tsetse impeded the successful occupation of Africa by Europeans in recent years, but in the past the presence of tsetse has greatly influenced both the rate and direction of the various Bantu waves of migration. Similarly, its presence has had a direct influence upon the distribution and type of cattle found throughout Africa, as the Zebu and Hamitic types were introduced from the north by Bantu people during their migrations.

North of the Equator—soon after the death of the Prophet Mahomet, the Arabs of Muscat overran Somaliland and the Sudan, imposing their religion on the native inhabitants. Sir Harry Johnston has pointed out that but for the presence of tsetse in the Congo Basin and in Equatorial East Africa, the Muhammadan Negro and the Arab invader would have spread much further south, in all probability the Arabs would have extended their conquests to Northern and Southern Rhodesia.

Away from the coast they were dependent on pack animals, horses, oxen, mules, donkeys and camels, which succumbed to the tsetse fly. They were unable to push their conquests into the interior on foot with carriers. Along the coast, however, they were able to establish their settlements and trading
East Africa.

B. H. Dicke, in a paper entitled "The Tsetse Fly's Influence on South African History" (1932), assumes that the centre of the various Bantu waves moving south along the probably partially fly-free route along the central watershed advanced more rapidly than the wings, until the heavily infested Limpopo Valley was reached. The two wings then advanced more rapidly than the centre. According to Portuguese records, Bantu people occupied the country around Delagoa Bay about 1500 A.D. and by 1650 A.D. they were encountered in Natal, i.e., they were moving south about 4 degrees each century. It was not until the middle of the 18th century that the Bavenda entered the Transvaal from Rhodesia encountering other Bantu tribes moving north. These latter people had evaded the fly infested Limpopo, travelling south along the fly free watershed in Southern Rhodesia and Bechuanaaland, circling the upper reaches of the Limpopo and then swinging north through the high veld of the Transvaal.

History repeated itself when the early Portuguese invaders attempted to push into the interior from their coastal settlements and forts at Lourenco Marques (1504), Sofala (1505) Quelimane and Mozambique (1508). Using the water way of the Zambesi and by porterage along the river banks where rapids occurred, they successfully established forts and trading centres at Sena, Tete (1531) and Zumbo (circa 1560). In 1569 the Arabs of Sena were accused of poisoning Captain-General Francesco Barreto's expedition from Quelimane—sent to avenge the murder of Father Don Gonzalo de Silveira (1561) by the Monomotapa at Masopa—though in all probability their animals which had been exposed to the bites of tsetse died of nagana. Barreto's expedition is said to have consisted of five companies of arquebusiers each two hundred strong with a corps of cavalry and some cannon, and accompanied by twenty small vessels on the Zambesi River. The same account says that only fifty men survived, Barreto himself dying when he returned with a relief column. (Wilmot, H. A. Monomotapa, 1896.) This expedition and others were sent to secure the gold mines of the interior, i.e., Mashonaland. That there was gold there they knew, for the Arabs carried out a very lucrative trade with the natives in gold. The failure of these expeditions, due to their horses and transport animals dying from nagana and their men from malaria appears to have completely checked Portuguese expansion into the interior for several centuries. They were never able to establish themselves permanently in Northern Mashonaland though they probably established temporary military and trading outposts at Darwin, Sipolilo and on the lower Mazoe River, for small cannon and other relics have been found nearby, while extensive ancient gold workings are numerous. In fact,
Similarly, along the Limpopo the Portuguese were able to push into the fly infested Northern Transvaal, but never made permanent settlements. It is very doubtful whether the Portuguese ever saw Zimbabwe, their descriptions being taken from native accounts.

From about 1569 to 1830, there is a long silence during which little is known about conditions in Southern Rhodesia and the Northern Transvaal. From 1830 onwards, when the first explorers entered the Transvaal, frequent references to tsetse are found in the writings of the voortrekkers (Trichardt, 6-7-8) hunters, explorers, and missionaries. At that time a belt of tsetse surrounded the high veld of the Transvaal, a huge horseshoe extending from the Marike River (a tributary of the Upper Limpopo) on the west to near the junction of the Nuanetsi and Limpopo Rivers, then continuing south below the Drakensberg into Natal. A belt 20 to 60 miles wide and some 24,000 square miles in extent.

Much of the low veld of Swaziland and Zululand was infested.

Perhaps the first white man to push north through this belt was Coenraad Bey, who left his half-caste son at Zoutpans and journeyed north to Sofala. His people, owing him later, lost all their cattle and many died from malaria; the survivors returned broken in health to the msavu.

In 1836 Van Rensburg led a party of Voortrekkers over Zoutpansberg into the tsetse infested Limpopo. Presumably they lost all their oxen from nagana and, unable to form a defensive laager with their wagons, were massacred by the Zulus in July of that year.

In 1837, Louis Trichardt crossed the Drakensberg with people hoping to find a way down to Delagoa Bay. Though surrounded by the natives of the presence of tsetse, he pushed on, mounting incredible difficulties on the way. Twenty-three days were spent in dismantling their wagons and getting them on the berg. One by one he had to leave his wagons behind, finally reaching Delagoa Bay in 1838, where most of the party, including the leader, died.

In 1836, the Matabele attacked and destroyed several parties of Boer voortrekkers and fought an indecisive fight with a party of Boers under Potgieter.

Early in 1837 (January), the Boers, under Potgieter and retired, successfully attacked Mzilikazi at Mosega, approaching the Kuruman Road, from which side no attack was expected. Again, hearing of Mzilikazi’s reverse, sent an army which attacked him with some success, and finally a new expedition
It was at this period that Potgieter constructed his famous Commando Path (1840) from the Zoutpansberg to near the junction of the Macloutsi River and the Limpopo River. According to Selous, who obtained his information from Dutch hunters, the road where it passed through a "fly" belt was a quarter of a mile broad, all bush being cut away on each side. Now it is almost certain that if there had been no tsetse in the valley of the Limpopo, the early Dutch Voortrekkers would have followed up their victory and possibly occupied Matabeleland. Like the Arabs and Portuguese before them, they were dependent on horses and ox transport.

Accurate information regarding the presence of tsetse in the Northern Transvaal, Bechuanaland and Southern Rhodesia began to accumulate very rapidly in the fifty years following the massacre of Van Rensberg's party in 1836, and after the Matopos had been driven out of the Transvaal in 1840. From this time, the history of Southern Rhodesia really commenced. It is impossible in this short paper to mention all the sources of information, but we are fortunate that many of the men, elephant hunters, explorers and missionaries who entered the country at this time, left behind fairly accurate written accounts of their experiences. Naturally, the first accounts deal with tsetse in the Transvaal, a very good summary of them being given by Austen (1863) in his "Monograph of the Tsetse Fly," and by Fuller (1923) in his paper entitled "Tsetse in the Transvaal and Surrounding Territories." Some of their names will be familiar to all of you here. Captain Sir William Cornwallis Harris (1839), "The Wild Sports of Southern Africa"—Harris hunted in the Limpopo Valley. R. Gordon Cummings (1890), "Five Years of a Hunter's Life in the Far Interior of South Africa," who describes his meeting with tsetse on the south bank of the Limpopo in the Zoutpansberg District. C. J. Andersson (1856), "Lake Ngami or Explorations and Discoveries, During Four Years' Wanderings in the Wilds of South-Western Africa."

W. C. Oswell and Major Varden—Oswell brought home the first G. morsitans which was described by Westwood in 1850—and finally Dr. David Livingstone (1857), "Missionary Travels and Researches in South Africa."

Livingstone left Cape Town in June, 1852, reaching Linyanti on the Chobe on May 23rd, 1853. His object was to find a healthy high land for a new missionary station, but he could find no suitable place free from tsetse on his journey to the Zambezi River. He then determined to find a road to the West Coast and travelled over-land to Loanda in Angola.
Livingstone's account and description of the tsetse is extraordinarily interesting and shows his great powers of observation. He suggests from the symptoms of sick animals: "These symptoms seem to indicate what is probably the case; a poison in the blood, the germ of which enters when the hoseis is inserted to draw blood. The poison germ, contained in a bulb at the root of the proboscis, seems capable, although very minute in quantity, of reproducing itself, for the blood after the bite by tsetse is very small in quantity and scarcely stains the dissection."

Livingstone's theory of a "poison germ" capable of reproducing itself is truly remarkable. The connection between robies and disease was not worked out until nearly twenty years afterwards, the discovery of the trypanosome causing disease was not discovered until 1896, and the full life cycle of reproduction of the organism in the tsetse until 1909. Livingstone also discusses the flies' breeding habits, prophylactic measures, etc. He and all the early hunters accepted native dience and firmly believed that the tsetse bred in dung, particularly buffalo dung.

Livingstone's next voyage of discovery commenced in 1878 when, accompanied by his brother Charles and John (Sir) Archibald, he landed at the mouth of the Zambesi—this time not as missionary, but as "Her Majesty's consul at Quelimane for the stern Coast and the independent districts in the interior and commander of an expedition for exploring eastern and central Zambesi."

Kirk's first report was dated 1860, but in a later paper of 1865, "On the 'Tsetse' Fly of Tropical Africa" *Glossina austeni*, Westwood, he makes several important references to tsetse. Kirk accompanied Livingstone up the Zambesi River Linyanti chiefly on the northern bank—though he mentions in very great abundance on the south bank of the river near Irundu—the site of the new Otto Beit Bridge. Kirk's paper is an extremely important one. He was the first trained scientist to describe the habits and distribution of the fly.

David and Charles Livingstone published their "Narrative of an Expedition to the Zambesi and its Tributaries" in 1865. They add little to Kirk's account, though it is interesting to note that they started one of the biggest controversies in the scientific world when they stated, "the destruction of all game the advance of civilization is the only chance of getting rid of the tsetse" (p. 424).

It will be noted that up to 1865 little or nothing was known about tsetse actually in the interior of Southern Rhodesia, though
he "annoyance to the painter by the incessant persecutions of the tsetse." Baines was accompanied on this journey by James Chapman—hunter and explorer—and it is to Chapman that we owe our first account of tsetse in Western Matabeleland, i.e., north of Wankie, and on the Gwaai River. Chapman published his "Travels in the Interior of South Africa" in 1868. He mentioned that "there is no access to the Zambesi River with pullock wagons, nor hunting on horseback, nor with dogs, in these parts, unless with great sacrifice," though he thinks a wagon road can be found down the Deka River. He states that there was no tsetse between the junction of the Gwaai and Zambesi Rivers and the junction of the Zambesi and Sebungwe Rivers about 30 miles east. It is probable that this area has never been infested—there are cattle there to-day. He also mentions the invasion of "tsetse" into a country denuded of its inhabitants—an important point.

On the question of eradication Chapman states: "I think he only chance of exterminating them is to keep up constant warfare with the buffaloes until they are driven out. Generally, when they have entered a new country with game, they soon increase and extend themselves farther every year, if the country is suitable."

All the early accounts associate tsetse with the buffalo and it is quite understandable for *G. morsitans* is essentially a game tsetse and buffalo were extremely abundant at that time.

The German, Karl Mauch, explorer and geologist, made several journeys into Southern Rhodesia between the years 1865-1869, and in his various writings makes several references to tsetse. Perhaps his most important achievement in this connection was the publication in 1870 of a map showing the limits of tsetse north and south of the Limpopo, and the southern limit of the great northern belt. Mauch, of course, was aided by information given him by several people—mostly elephant hunters, like Adam Renders, Phillips, George Westbeech and Henry Hartley. Westbeech probably knew the country better than any of the others, but he did not leave behind him written records. St. John Erskine accompanied Mauch on one of these trips and was probably the first white man to visit Melsetter—his route is shown on Baines' map.

Mauch discovered the Tati Gold Fields and started the gold rush to the north.

*E. Mohr (1876) "To the Victoria Falls of the Zambesi," states that he left his wagon somewhere near what is now Ngamo.
Eastern Africa," the most important account of tsetse in Southern Rhodesia yet given. He had, on the recommendation of the Royal Society, been appointed artist and store-keeper to Livingstone’s expedition to the Zambesi River in 1858, but left owing to a petty dispute over a portrait of a Portuguese lady (wife of the Portuguese Commandante) who had befriended him when sick with fever. He was accused of misappropriating the expedition’s supplies. He then joined Chapman’s expedition to the Falls (1861) and became an acknowledged authority in South Africa. Sent out in 1870 by a London Company to the Tati Goldfields which had been recently discovered by Mauch, he was instructed to make friends with the local chiefs and to explore further north. The map which accompanies the book is a really extraordinary work. Compiled with the help of others, it shows the routes taken by Chapman (1852-54), Livingstone (1856), Moffat (1856) into the Sebungwe, George Wood (1867-8). Wood penetrated north of Gokwe and Sinoa—Mauch, 1867, Phillips to Mazoe (1870), Erskine to Melsetter (1872). In addition it shows the limits of tsetse similar to Mauch, but with more detail, particularly around Gwelo, Hartley and Sinoa.

It is an amazing piece of work, and wonderfully accurate. Baines was present at the inauguration of Lobengula as King of the Matabele. Baines was particularly indebted to Henry Hartley for much of his information.

By this time (1870-80), the distribution of fly in Southern Rhodesia was fairly well known and the route to the Falls along the Panda-ma-Tenka road had been opened up and was well known. Additional information is given by Dr. Emil Holub (1880), "Journey Through Central South Africa, From the Diamond Fields to the Upper Zambesi," in which he mentions fly along the Panda-ma-Tenka road; by F. Oates (1881), "Matabele Land and the Victoria Falls," and F. C. Selous (1883), "Further Explorations in the Mashuna Country."

In 1882, "A Memoir of the Life and Death of the Rev. Father Augustus Henry Law, S.J.," was published. In it several references are made to tsetse in the Sabi Valley, which he crossed in 1880. Travelling from Lobengula’s Kraal to Umzela, paramount Chief of Gazaland, he had to make a wide detour to the junction of the Sabi and Tsungwesi River (he gives the latitude as 19°—10°—15°) to escape the fly. Father Law died at Umzela’s Kraal, which was probably on the Umseleze River below Chikore. W. M. Kerr (1886), "The Far Interior of Africa," also published a map, showing a journey from Cape Town to Nyassaland and shows the fly limits north of Sipolilo and Darwin and north of the Zambesi River. In 1890 Holub again describes a journey along the Panda-ma-Tenka road and
Sometime during the 1870's the fly belt in the Limpopo Valley began to break up and lanes were formed, along which explorers and hunters could come up into Rhodesia without passing through a tsetse belt and without passing through Matabeleland, though permission to enter Mashonaland had first of all to be granted by the Matabele. This road became well known as the "Hunter's Road." There was a fly-free route north through Bechuanaland and what is now Bulawayo, but by this time British influence was being felt in Bechuanaland which was declared a British Protectorate in 1885. This road north was now barred to the Boers in their northward trek.

This is not the place to discuss the various concession hunters who pestered Lobengula for permission to work for gold in Mashonaland, but when in 1888, the "Rudd Concession" was obtained by Rudd, Maquire, Thomson and the Rev. M. Helm, the way was open for the pioneer column to enter the territory by a fly-free route via Tuli and Fort Victoria. The pioneer column was guided by the hunter, F. C. Selous, who had an intimate knowledge of the country and of the whereabouts of tsetse. The tsetse which had held up the Boers for fifty years now gave Rhodes his chance. The pioneers were by no means entering an unknown country as a glance at these early maps will show.

After the occupation of the country, there occurred in 1895-6 the great rinderpest epizootic, which swept down from the north and killed off most of the big game in the country, affecting particularly eland, kudu and buffalo, as well as domestic stock. This was a tremendous blow to the new settlers, but there occurred at the same time a tremendous reduction in the areas occupied by the tsetse. The southern fly area completely disappeared, actually there was very little of it left by this time, much of it having disappeared before 1890, as also did the belt of tsetse at the Victoria Falls. There appears no reason to doubt that the disappearance of the small belt at the Falls and the partial disappearance of the main Limpopo belt was due to the almost complete extermination of the buffalo and other big game by hunters.

The northern fly area did not completely disappear, but shrank to a few small isolated centres in the Hartley, Lomagundi and Sebungwe districts, eight in all. Of these eight foeti, one, the Suri-Suri belt disappeared owing to mining activities about 1916-17, the remaining belts expanded slowly, concomitantly with a corresponding increase in game, until, in 1918, 9,000 square miles were infested. In 1929, about 22,000 square miles of country was infested, and the annual loss of ground given over to the tsetse fly was about 1,000 square miles per
Since the year 1909, when the present Chief Entomologist was appointed, a special study has been made of the tsetse fly problem in Southern Rhodesia. Quite soon after his appointment, maps had been prepared showing the pre-rinderpest fly areas, the areas occupied after the rinderpest and their annual spread as time went on.

The destruction of game as a defensive measure against the encroachment of the tsetse was first tried out as an experiment in the Wankie District in 1918. Although a controversial measure, it was based on the considered opinion of most people who had had intimate personal knowledge of the dependence of G. morsitans on the blood of big game and on the evidence of past history. The results of this experiment were entirely satisfactory—the fly was driven back north of the Shangani River and animal trypanosomiasis eradicated from the Gwaai Valley. When in 1925, the slowly expanding northern belt began to invade settled areas in the Umboe Valley, it was decided to carry out the same measures that had been found successful in the Wankie district, but reinforced by the provision of fences, because immediate results were required.

In 1926, similar operations were commenced in the Gatooma area and in 1929, again in the Wankie district. In 1929, it was decided to extend these operations along the whole fly front wherever necessary, though later the operations were discontinued in the Gokwe area. In practice it meant the creation of a game free buffer zone approximately 20 miles deep along the whole 600 mile front.

The experimental stage has passed—today it is a proved measure which can, with confidence be applied to any area on the periphery of a fly belt wherever land is required for European or native development.

The cost, both financial and ethical, has been great and is an ever mounting total and the question of how far we shall bite into the fly belt reclaiming land for which at the moment there is no immediate want will soon demand an answer. Up to date we have stopped all spread of the fly and have recovered some 4,000 square miles of country.

Stated briefly, the immediate objectives of our present policy are:
(a) In the Northern districts to drive the fly below the escarpment.
(b) If possible to clear the Darwin district. In this area we shall leave behind an infested area in Portuguese East Africa which was originally infested by fly spreading from Southern...
(c) In the Hartley, Sebungwe and south-western Lomagundi districts, to drive the fly back to a line running from north of Gokwe to north of the Copper Queen Mine. This will include the old sleeping sickness centre at Gowe and the whole of the old Mafungabusi fly belt.

(d) In the Wankie, Bubi and Sebungwe districts, to drive the fly back to a line running north of Kariyangwe in the Sibata Reserve and eventually to a line running from Gokwe to Tshete on the Zambesi.

We hope to succeed in this without exterminating any species of game in the country and eventually to leave the country with as much game behind the lines of operations as can be supported and tolerated in a country developing along European lines.

The tsetse fly problem on the Eastern Border is an entirely different one, and has not been discussed in this paper. There we are operating on different lines—the creation of an open barrier cleared of bush—and against two different species of tsetse (Glossina pallidipes and G. brevipalpis). A disquieting development of recent years has been the discovery that G. morsitans now occurs close to our border, at one place within five miles, and it is feared may eventually invade the low veld in the southern portion of the Melsetter district.

The lecturer exhibited a blue print of Karl Mauch's map and photostat copies of the maps of Thomas Baines and Mr. W. M. Kerr. The last two were obtained by kind permission of the Government Archivist.