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Maasai history in relation to tsetse encroachment

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MASAI HISTORY
IN RELATION TO
TSETSE ENCROACHMENT

by

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MASAI HISTORY IN RELATION TO TSETSE

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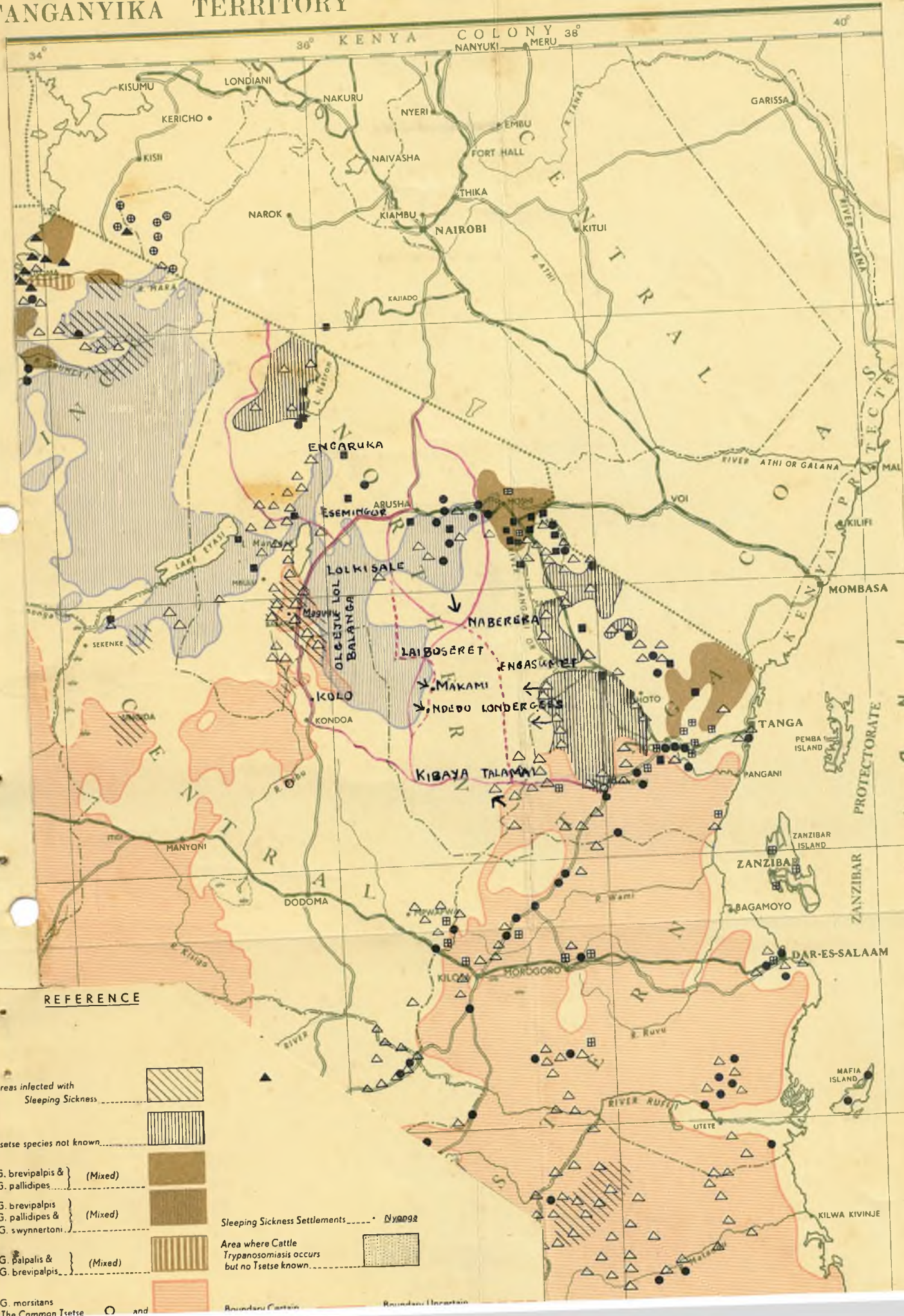
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TSETSE & SLEEPING SICKNESS MAP

(December 1947)

TANGANYIKA TERRITORY

WITH ADDITIONS TO ILLUSTRATE HISTORY OF TSETSE ENCROACHMENT IN MASAILAND.



MASAI HISTORY IN RELATION TO TSETSE

SECTION I

INTRODUCTION

This project originated when Mr. (now Sir) R. de Z. Hall as Member for Local Government was on safari with the then Provincial Commissioner, Northern Province, Mr. F.H. Page-Jones. It was considered that a historical check-up on Masai movement might provide evidence of the encroachment of tsetse in the period before records are available. For reasons given in section II, it proved impossible to take Masai movement per se as an indicator of tsetse encroachment. It was only when such movement was correlated to the explanation thereof that what is believed to be the true picture emerged. Although this may not be accurate in every detail, it was thought that the study was well worthwhile in putting the whole picture in perspective and in opening certain lines of thought. In particular, the effect of the natural destocking and a reversion to hunting in famine years may have had considerable affect on the fly situation: the possible future relationship between chemical prophylaxes and the spread of fly deserves much thought. A third facet is the Sleeping Sickness situation, which requires to be kept under review.

2. My first approach to this project was a perusal of standard historical works - Krapf's "Travels and Missionary Labours in East Africa" (1860), Charles New's "Wanderings in East Africa" (1873), Thomson's "Through Masailand" (1885), Hollis's "The Masai" (1905), etc. Going through these works, I found no mention whatsoever of tsetse. This exercise, however, led me to review the value of Masai age-sets as a means of dating particular events. As is well-known, the Masai are divided into named age-sets - a new one being inaugurated approximately every fifteen years. Thus, if one knows a Masai's age-set name and his status or grade, i.e. junior moran, senior moran, junior elder, senior elder or retired elder, at the time of any given event, the date can be fixed with reasonable accuracy. A number of previous irreconcilable points were cleared up in this connection and a separate paper has been written and will be published thereon. The final results which can now be taken as reasonably accurate are shown in Appendix I.

3. Masai history often cross-references to that of the neighbouring tribes who are frequently referred to by the Masai by names other than those by which they are commonly known. For this reason, to assist any future investigator in this field, I have attached a list of such tribes with their names.

knowledge of the area by virtue of his long service there, and in particular, owing to the work he has put in on the Area Surveys in connection with the Masai Development Plan. Prior to these surveys, Mr. R.H. Gower had written an appraisal of South Masai in 1947: his report covered administration, cattle distribution, water development and tsetse. I have drawn considerably on the writing of the two above-named officers as well as on verbal information passed across by officers at present serving in Masai. Finally, the report was read in draft by the Director of Tsetse Survey and Reclamation, Mr. H.M. Lloyd, the Acting Regional Assistant Director of Medical Services, Dr. C.L. Hall, and the Regional Assistant Director of Veterinary Services, Mr. W.G.G. Pevie, whose comments I have included in the text. I am most grateful to these officers for their assistance in this matter.

5. To complete this project, I had considered including a number of additional area studies dealing with the outlying tsetse belts such as the Lake Jipe area in North Pare, the Matron area and that of Western Loliondo. In view of other pressing commitments, on the Member for Local Government's instructions, these are not being attempted at present.

SECTION II

MASAI MOVEMENT AND TSETSE MOVEMENT

6. In this section it is proposed to discuss the value of Masai movements as tsetse indicators. It may be said straight away that such movement is not a good indicator of changes in the fly position, whilst others may be due to tsetse without the Masai realising it. Again other movements may be made in spite of tsetse, i.e. a move into infested areas where risk of infection is preferable to the conditions prevailing elsewhere.

[some movements are not caused by tsetse,

7. Thus it was only possible to approach this problem by studying not only Masai moves, but asking them the reasons for such moves and in general trying to piece together a history of tsetse encroachment from traditional history.

8. In doing this, one was handicapped straight away by the fact that the peculiar Masai social system results in a marked lack of continuity between generations, with a consequent loss in oral tradition. It is also necessary to consider: (i) how truthful are the Masai in giving information; and (ii) how accurate is their observation of the tsetse position. Concerning the former, I noted marked reluctance to admitting the encroachment of

more or less lost to them. But after some time I formed the suspicion, later confirmed by three independent sources, that this reticence was deliberate evasion, due to the fear that if they admitted the presence of fly, they would then be turned out on bush clearing work. For this reason, much of the information I was given had to be discarded as probably false.

9. The next step is to consider how good are the Masai as observers of tsetse. It must be remembered that whilst the two more common and widespread types of fly, G.morsitans, and G.swynnertoni make themselves obvious, other types dwelling in thicket and forest, particularly G.pallidipes, may be infecting cattle with trypanosomiasis, though their presence is unsuspected. This, in fact, occurred for a considerable period in Mpwapwa, where theories of mechanical infection were being evolved to account for tryps. cases when all the time the area was infested with G.pallidipes. If the Vets, with all the aids of modern science at their disposal were misled at their very headquarters, how much more so are the Masai liable to draw false deductions from their observations and empirical experiences. On this point, Mr. Lloyd comments:-

"Another example of infection, that was thought to be by mechanical transmission, is that of Zanzibar. The culprit there was G.austeni."

10. In several instances the Masai say they abandoned certain stretches of country owing to the disease called ol-digana. This is the common word for E.C.F. but in point of fact, in certain cases there is good reason to believe that it was in fact tryps. which drove the Masai out. Examples which I can recall are Moru on the Western Serengeti, Mbulumbulu and the Karatu areas of Mbulu District, and Laivera in Southern Masailand. In all these cases the Masai stated they had moved out owing to ol-digana but subsequent events proved those areas to be subject to tsetse encroachment. It was probably the first phase of such encroachment which led the Masai to withdraw before tsetse had manifested itself in the area. An additional complicating factor, to which Dr. Hall draws attention, is that malaria is also called ol-digana. He continues:-

"There is a very virulent strain at Moru which has caused a number of deaths, including one of the Dhillon brothers. I suppose this was not the reason for retreat?!"

This is certainly a point for future investigators to bear in mind.

position was very acute in the Ngare Nanyuki area, the District Commissioner conceived the idea of transporting this hay to relieve the fodder situation there. The Masai were dubious about this, saying that as the hay came from a tsetse infested area it would affect the cattle which ate it. However, the project went through, the hay was eaten by a number of cattle at Ngare Nanyuki: some of these died and the Masai said "I told you so". The fact that deaths were probably inevitable, owing to the condition of the beasts, and may have been accelerated by over-eating, was ignored by the Masai who are now confirmed in their belief that trypan infection can be carried by grass.

12. The second story concerns the spread of fly. At Londergess I was informed by a headman in all seriousness that "Bwana Ndorobo" was the cause of all the trouble. He sent Africans round with nets and tins who were employed to catch flies in infested areas and then to release them in areas so far clear of fly. I checked up on this story elsewhere and whilst it appears fairly widely known, I do not think that it is generally believed. It might be as well, however, for the introduction of fly boys in an area to be preceded by an explanation of their purpose.

13. To sum up then, Masai movement per se cannot be taken as a satisfactory indicator of tsetse spread. Even Masai movement, when combined with traditional history of tsetse, is not a highly reliable source of information. It is, however, possible to get some indication of past movements by the historical approach, and the facts and impressions that I have gained are recorded in the following sections.

SECTION III

AREA STUDIES: THE MORSITANS BELT

14. A glance at the map attached to this report reveals that the fly crossing the south-eastern border into Masailand from the Handeni District is an extension of the G.morsitans belt which covers the whole of east and south-east Tanganyika. This belt is divided from the western by a fly-free corridor running down from central Masailand through Ugogo to Iringa, Njombe and Lake Nyassa. I believe that entomologists regard the fly inhabiting this area as a different sub-species from that of the west, thus indicating that the division between the two areas is of considerable duration. Mr. Lloyd enlarges on this:-

"The two races possibly have evolved owing to the high country of the west, which is a

eastern and central races may have been formed a long time after the western race had become isolated. The creation of the eastern and central races may have been due to the adverse climatic factors dividing the original stock into two widely separated sections."

15. The present position in this area is best set out by quoting from Mr. Gower's report written in 1948 and bringing his information up-to-date with notes from Mr. Grant's Area Surveys conducted in 1953. Mr. Gower's general picture is as under:-

"The main attack from tsetse is coming from the south east. Large waters have already been lost and others threatened. Good water at Ngayage near the border in the south east of the district has been lost. Lolmukutan further N.E. has been lost. Samatwa waters are still partly used but the presence of fly here is fully confirmed by Mr. Lloyd's comprehensive survey made in 1941. The large river of Sunya is not now used at all by Masai but supplies the needs of the growing agricultural community of aliens. Further north, following the boundary, are two most important waters at Lengatai and Mtambalu (both near the Handeni border). Tsetse is within a few miles of each of these waters inside the Handeni District.

"Mtambalu supplies more bomas than any other water in this area. It contains salt and is therefore very popular. The wells are shallow and watering is by Masai standards comparatively rapid. It is unfortunate therefore that there seems no reason why this water should not be completely lost in the next few years, if the tsetse resumed its advance.

"The fly continues intermittently up the border but is still mostly on the Handeni side. There is fly to be found in some years at Mafisa and north of Kiberashi. The fly from Saunyi has now advanced as far as Losikitok and is also to be found to the north of Talamai mountain at Lekara, Kibulalia and Olmoti Lekatopi (Kaitoki). Further north there is fly reported at Olmoti Mansingot and Lolaikumaishi and Supaker.

"The above very roughly represents the present fly position, but its advance is everywhere seasonal, and its boundaries in the important area round Mtambalu have recently receded. About 1941-2 neither Lengatei nor Mtambalu waters were used by the Masai and fly had even advanced as far west as Dubudutu."

17. This picture of ebb and flow seems to be repeated to the south of Talamai, which area I did not visit. Mr. Grant states "infestation severe in 1941 when all waters were disused by Masai except Lakikilal and springs on western slopes of Samatwa mountain. Since then there has been a gradual recession of fly accelerated in the last two years."

18. Thus the year to year picture is one of advance and retreat, but when viewed in the perspective of history, it appears that such movements merely represent the ebb and flow of waves in a steadily encroaching tide. The information I gleaned was that in the pre 1890 era, the nearest fly was at a place called Sambu in the Sunya area. This was the first place that the Masai, advancing through the area in the mid 19th century came across tsetse. It is generally held that when the Masai re-established themselves in the early 20th century after the famine and rinderpest, they found the fly had retreated. Advance is said to have recommenced in the 1914-18 war period when fly occurred at Mbogoi and Msanja between Mugeru and Handeni. Thereafter it reached Losikitok via Sauni, said to have been carried there by the movement of buffalo. Once established there, recent advances and retreats are described in the extracts above.

19. Mr. Gower concludes pessimistically that given certain conditions "the future position of ~~the~~ Masai in this area can be predicted with certainty. They will first lose all the waters and grazing in the area. They will then be driven back to the east of Talamai, and when these in turn are lost, the area west of Talamai with its great shortage of water will continue to support meagre herds for a short time before they too are engulfed. I doubt if anyone can predict with any accuracy the advance that will take place. It may take twenty years or more but the end result seems inevitable."

20. The present retreats may be thought to justify some optimism, but in view of the past history, one fears that such minor recessions do not in fact represent the turning of the tide and that Mr. Gower is probably right. On the other hand, the susceptibility of morsitans to retreat in the face of human activity may in some measure account for the present position. This seems worthy of technical investigation for if it proved to be the case, then the policy in respect of cultivation by aliens should be modified in the light of the knowledge so gained. Mr. Lloyd comments:-

"Human activity certainly does appear to affect
G. morsitans adversely. However the density of

SECTION IV

AREA STUDIES: THE SWYNNERTONI BELT

21. Again referring to the map, it can be seen that the fly infesting the remainder of central and south Masailand is mainly G. swynnertoni encroaching from the west. This invasion is comprised of three main prongs, one advancing south-eastwards and involving the Naberera and Makami area. The second can be visualized as a due east movement passing through a bottle-neck at Lolkisale with the Kissongo plains to the north and Simanjiro to the south as fly-free areas. Thence this prong fans out and covers lower Arusha and Moshi on its northern flank and penetrates down to Lossogonoi on the south. The third prong points northwards and includes the Essimigor and Engaruka infestations.

SOUTHERN PRONG

22. Dealing with these areas in the order mentioned above, the southern prong was particularly Mr. Gower's field of enquiry and I quote from him freely. The other two areas were untouched by Mr. Gower but the Masai Areas Survey (Grant and Cleverly) have much information on them, which I quote below. Returning to Mr. Gower, whose pessimism is only exceeded by the accuracy of his forecasts, the following is a shortened version of his picture of the area:-

"In the north there is tsetse along the Kikuletwa (Upper Ruvu) river near the suspension bridge leading to Sanya. This tsetse makes the Ngatananyuki mbuga astride the Naberera road unsafe for grazing. The tsetse follows westward round the horseshoe bend of the hills leading to the region of Oldonyo Lolasho; presumably it forms a solid block with the Simanjiro area. Its eastern boundary follows west of Lemelebo. A little further south tsetse is present at Olkutu hill, where the Masai have lost a former watering place. The boundary then travels south across the Lolkissale-Naberera road to Rotian

"From Rotian the boundary passes south east to the western side of Lengijabe hill. The Lengijabe wells, where there is a vast amount of water, are now only used by 4 Bomas although formerly it is reported that as many as 20 Bomas used them. To the south of Lengijabe hill are the Namalulu wells which

"Further south, tsetse has long since driven the Masai from Loldorobo water The tsetse boundary then runs south roughly following the base of the escarpment bordering the west of the Makami depression. The bush and hence the tsetse has unfortunately encroached sufficiently into the depression to make the Makami wells finally unusable. Some 16 miles south at the end of the depression Ndedo wells are still used, although threatenedFurther south the tsetse boundary swings westwards just skirting Langwa wells and along the north of the Ngumumwa mbuga

"The whole area west of the escarpment from Iaivera to Langwa has been lost to the Masai as westwards there is a solid tsetse belt to the region of Kikore and Babati. Along this stretch of road are to be found a series of open plains and rainponds which formerly must have provided an admirable wet season grazing ground for Masai who used Makami and Ndedo wells during the dry season.

"The complete loss of Makami wells and the threat to Ndedo and Langwa is a major tragedy. As late as 1941 there were 26,000 head of cattle in this area. The 1947 cattle count showed that only some 4,000 head remained

".....the presence of tsetse on the west of Lolmorijoi is a most serious matter as it is a potential threat to Engasumet wells, which lie less than 10 miles north east and which are used by about 28,000 cattle in the dry season.

"The Londergess area is at present free from tsetse, but tsetse, as has already been noticed, is not more than 10 miles distant on the north west at Lolmorijoi; also about 15 miles S.E. of Londergess fly is reported at Lolaikumashi and Manaingot. The latter fly is moving north west round the Kitwai mbuga from the north Talamai area. Eventually Londergess may find itself in the unhappy position of being the meeting ground of the two fly belts.

"The Ruvu is also at present comparatively free from fly. In the south fly is reported at Kapokio and in the north the fly following the horseshoe bend of the Kikuletwa river also enters the Ruvu area. This latter fly belt restricts the Lossogonoi Masai in approaching the upper Ruvu. The rest of the Lossogonoi area is fly-free with the exception of the

are at present fairly free from fly but each has foci of tsetse on its borders which may eventually spread. The Makami area has nearly been completely surrendered to tsetse and the Naberera area is very gravely threatened."

Mr. Cleverly, who did the area surveys here in 1953, shows further fly encroachment on all fronts.

23. My own observations were rather surprising. In the first place at Landanai one or two bomas were in residence and Kone, the Lossogonoi area headman who had been living in Naberera moved back to Landanai when I was on safari there. Thereby hangs a long and complicated story. It appears that the main Landanai water is the property of the Mamasita clan, of whom one Ndorosi is senior representative. When Balosi, one of two claimants to be head Laibon of the Tanganyika Masai, suggested that those of his cattle resident in the southern area should water at Landanai, Ndorosi refused. The Laibon in his turn took revenge by casting a spell over the whole area. Hence the cattle sickness which had compelled the majority of the inhabitants to move out. The inhabitants then approached Balosi, saying that they were willing to allow his cattle to water, but he in turn should withdraw the spell. It was in anticipation of this that Kone was moving back to Landanai. So much for the Masai as accurate observers and interpreters of natural phenomena such as fly encroachment.

24. In addition, I surprisingly found a couple of bomas at Makami water. They had been there prior to the commencement of clearing work, which had just begun when I visited the area. A so far unreported fly encroachment which I observed was the existence of fly on the plateau on the top of Londergess hill which I crossed when walking there from one group of wells to the other.

25. Turning to the area from which this encroachment originates, namely, the large block of country on the Masai-Kondoa border, south and east of Laiborseret, tradition indicates that the Silalu-Kimotorok area east and south of Laiborseret used to be bad in Laimer and Dalala times, say 1870 to 1890. One informant said that it was necessary to pass cattle through the bush of that area by night. Thereafter, of course, the Masai were decimated and scattered by famine, and the next one hears of the area concerned is during World War I. There is a well authenticated large scale movement from the area south of Kibaya dated about 1916. I have heard this attributed to the fact that with a relaxation of

An alternative story is that the Germans were positioning livestock for military purposes at that time and in consequence the Masai tucked themselves away in the most inaccessible areas they could find. I think the latter is the more likely, as the evidence in support is very circumstantial: accounts are given of how so-and-so lost all his cattle, so-and-so had such-and-such a number taken, etc., etc. Whatever the reason, it is plain that the area in question was taken up at that time and accounts indicate that it was found to be fly-free. On the other hand, one must not entirely discount the possibility that it is one of those cases when a mild fly infestation is the lesser evil.

The western front of this south-eastern bulge is of interest, namely, the area in Kondoa where the fly front reaches the base of the Kondoa highland area. This is a morsitans and swynnertoni area (see map). The morsitans spread is traceable in historic times - in 1902 there was actually a German Veterinary Officer stationed at Kikore. Mr. Lloyd has unearthed a reference to this in a diary kept by W.H. Potts, wherein he records the information that tsetse first invaded Kikore in 1904. The western wing of the morsitans block has spread with remarkable speed (see map 5 in Swynnerton's "Tsetse Flies of East Africa") through Sandawe towards Singida and Manyoni, and there is no indication that the eastern arm has spread with equal rapidity. From the information now collected, it appears that the swynnertoni spread can also be traced to historic times. I met Masai who had grazed their cattle all along the Busi, Sambwa and Pahi areas, at the foot of the Kondoa highlands to the point where the Kolo river debouches on to the plains at Chungai. The Masai call this river Olgedju or Matasia. The Masai were apparently in friendly relations with the Rangi as they can quote names of Jumbes and other places whom they used to visit and trade with - one more nail in the coffin of the theory that the threat of Masai encroachment penetrated the agriculturists in the hill areas.

In connection with pastoralism in Kondoa, it is of interest to note that the present Masai types in the Chungai area are Kwavi who came across from Handeni to the Burungi area of Kondoa when Mr. Maguire was District Officer at Kibaya, say in 1925. The Masai of Kibaya state that three groups of Kwavi came through southern Masailand about that time and I suspect that the pastoralists of Haneti in Sandawe and those to be found in Sandawe were also Kwavi who came through at about that time. The 1948 Census shows that there were a total of 594 "Masai" in Sandawe and 595 in the Rangi, whilst the Dodoma District total was 3560, of whom 352 were in Itese and 352 in Mchurumane.

including Kiru and western Tarangire. I frequently met informants who stated that they had watered as far west as Tarangire - called by the Masai Olgedju ol Balanga - but I met no one who had lived or grazed on the western side of this water. Raiding parties which travelled westwards in the pre-famine era are said to have brought their stock through this belt by night.

CENTRAL PRONG

28. This brings us round to the advance due east of Fiome, i.e. past Oldonyo Sambu to Lolkisale and thence fanning out in lower Arusha and Moshi, with the southern spread towards Lolbene and Lossogonoi. The western area is not dealt with by Mr. Gower but Mr. Grant, in the area surveys, shows how in spite of frequent re-penetrations by the Masai the overall history has been one of steady fly advance. The contributions which my safaris enabled me to make to our knowledge of the area, are as follows. Firstly I picked up a G. pallidipes at Tarangire. Mr. Lloyd confirmed my identification and stated that as far as is known, this is the most eastern occurrence of pallidipes so far recorded in the area.

29. A second point of interest concerns possible Sleeping Sickness in the area. At Tarangire, I met up with a hunting party under the guidance of S. Lawrence-Brown. He mentioned that his brother contracted Sleeping Sickness in this area some years back. This is well known to our medical and tsetse authorities. What apparently is not known is that according to Mr. Lawrence-Brown three of the Africans on that same safari also went down with Sleeping Sickness and were treated in Nairobi.

I can across this point again when trying to contact some of the Balanga Dorobo. I was told - with typical African exaggeration - that they were all now dead! Getting down to concrete cases, however, it appeared that four had died this year, and four last year, of "fever" incurred after visits to Tarangire. Now it is unlikely that this would have been a malarial infection, because these Dorobo must have regularly visited the Tarangire area for the whole of their lives and so must have built up some immunity. In fact, in

"Since you advised me that the Balanga Dorobo were wandering over to Mbugwe shopping, I attach no epidemiological importance to their suspected infection, though it is very interesting. I am, of course, accepting the theory of an animal reservoir for T. rhodesiensi. The addition of a few Dorobo is of little importance, but an intrusion by Masai who are comparatively static would certainly be significant."

30. Concerning the Lolkisale area, the map reveals at a glance how the bush between the Kissongo and Simanjiro plains has provided the corridor whereby lower Arusha and Moshi became infested with G. swynnertoni. The infestation itself in this corridor appears to be neither very heavy nor of very long standing. On German maps, Masai bomas are named half-way between Ngare Ol Motonyi and Lolkisale, which names are today recognizable to informants. The stretch of country now in lower Arusha District has always had a bad name, Loljoro and an area called Murungoin near a hill called Laroi. It is said that the grass was bad and brought disease. Is this one of those cases where a pallidipes infestation existed unsuspected and the area was not considered as fly till the more conspicuous swynnertoni came in? Further east, the Olokee area has always been popular and now, although in Arusha District, contains a considerable number of Masai driven up from the Naberera-Lossogonoi area.

Further east still, I observed the surprising phenomena of cattle grazing and watering in the riverine forest on the Kikuletwa just where the old suspension bridge used to be. The herdsboys to whom I spoke, said they saw no fly there nor were their cattle fly struck. They pointed to areas at the base of the hills, however, which they said they avoided. A search by the Tsetse Department in 1953 revealed no tsetse in the neighbourhood of the bridge, though the neighbouring hills were not examined.

31. The frequent references to pre-famine fly infestation and the surprising fact that once re-established with herds of cattle, the Masai found they could penetrate those areas previously infested, led me to consider the possible effects which these events must have had on the ecology of the area. I am thinking particularly of the Lolkisale, Laiborseret, Silalu, Kimotorok areas which seem to be chiefly concerned. From all accounts, the Masai must have been pretty well stocked up with cattle

driving the game back and secondly in causing more grass fires; these latter in turn would be of greater intensity owing to the amount of grass available. It does, therefore, seem possible that what would otherwise have been a steady fly advance was retarded by these events. When circumstances changed once again with the grazing becoming heavier and intense grass fires less frequent, it seems natural that the advance should once again recommence in an accelerated form.

THE NORTHERN PRONG

32. Turning to the north, the advance of swynnertoni can be dated with some certainty. I recorded in 1939 a fight between the Merishari age circ. 1815 of Masai with folk whom they called Adoru, who were probably a Tatog group. In the course of the present enquiry, I got precise confirmation of this dating. In respect of the water on Essiningor, called by the Masai Njoro Losimingor, it appears that this spring was first claimed by two moran of the Merishari age, one being Wao of Molelian clan, Nukerere sub-clan, the other named Ramet of the Laiser clan, Engidong sub-clan. Descendants of both these are alive today and while the water was still useable, used to share its use on alternate days. One such descendant states that having abandoned the area in German times, he returned to Manyara in 1918 when Mr. Brown was District Commissioner and from there attempted to go back to his ancestral water on Essiningor, but found it infested with fly.

33. Such infestation, however, dating from 1918 cannot have been a hundred percent deterrent since the water surveys conducted in 1951 yielded evidence of troughs and bomas showing that the waters had been in Masai use in the not far distant past.

The situation further north at Engaruka has not been studied from a historical point of view, but would provide an interesting small area study if this project is taken up again in the future.

SECTION V

CONCLUSION

34. This report is strictly factual: recommendations were not called for by my terms of reference. I feel, however, that it is appropriate to offer one or two comments in the light of this enquiry, combined with a lengthy administrative

of square miles have been lost in historic times. When Mr. Swynnerton wrote his "Tsetse Flies of East Africa" in 1936, the history of certain fly belts, e.g. that of western Kondoia convinced him that the spread would continue. His prognostications have proved perfectly correct. In consequence, it is not mere pessimism but also prudence which indicates that policy should be based on the assumption that all habitat capable of harbouring fly will eventually be infested with fly if left to itself.

36. In the second place, it should be assumed that more and more country will become favourable habitat in the future. The speed at which this can occur is quite remarkable. An example from a neighbouring area is that of the country between Hanang mountain and the Rift Wall on the Katesh-Basotu Road. Here an area that was open grass plain in recent years is already covered with Acacia Spirocarpa and this is rapidly thickening year by year. It is only the particularly favourable topographic situation whereby it was possible to make a clearing along the top of the Rift that has prevented this area from infestation. Likewise in Masai country the same process is to be observed of grassland giving way to weeds and woody shrubs which, in turn, develop into bush capable of harbouring fly. Mr. Lloyd enlarges on this point:-

"Acacia spirocarpa can indeed be a menace. I have come across widely separated areas in the Territory, which are now covered by wooding where that tree is dominant, and which are now infested with G.morsitans. When the elders were young these places had been treeless."

37. No final conclusion can be drawn as to whether this process is due to man's activities or to a steady desiccation due to decreasing rainfall. A few facts, however, seem worthy of record to refute the argument that "the Masai are ruining their country by over-grazing". Quite apart from the fact that they are quite the best cattlemen in the region, it should be recalled that they have been in central and south Masailand for only just over a century. Further, they had been settled for less than 50 years when they were struck by smallpox and famine and they themselves and their herds decimated. I have commented elsewhere in this report in the way these changing conditions may have affected the fly situation. They likewise must have brought about a relief from over-grazing and consequently retarded the process of bush encroachment if, in fact, it were going on at that time. Mr. Lloyd, whose experience is territory-wide, holds much the same views, viz:-

38. There is considerable evidence at least from Makani southwards that this country had previously been inhabited by iron-age agricultural folk. At present it is very marginal for agricultural activities and it seems safe to assume that when such were being practised in the area, the rainfall conditions were more favourable than they are today.

39. Further evidence supporting the desiccation theory is to be found (a) at Engaruka, under the Rift Wall, and (b) throughout southern Masai in the form of rain ponds. Dealing first with Engaruka, here we have a concentration of ruined dwellings which contained some 30,000 to 40,000 inhabitants, at a period 150 to 300 years ago - see Dr. Leakey's report published in Tanganyika Notes and Records No. 1. The Meteorologists tell us that the average rainfall at Engaruka is 14.54 (an eight year average to 1949) obviously insufficient to support that population by ordinary agriculture. What about irrigation, of which there are considerable remains? The Hydrologists tell us that the Engaruka stream now carries about 8 cusecs of water. Allowing for a duty of 100 acres per cusec under general cropping (comparative figures are 40 for sugar cane and 50 for rice), this would keep 800 acres under cultivation. Suppose cereals were produced at the rate of 10 bags - one ton - per acre, the total yield would be 800 tons. Allowing the inhabitants to consume an average of $1\frac{1}{2}$ lbs. cereals per day, each person would consume $1/4$ ton per year; thus the total irrigable area would produce enough food for 3,200. If, however, they were sufficiently skilled to take off two crops a year, this amount might be doubled, and enough food secured for 6,000 people. This falls very far short of the 50,000 - 40,000 inhabitants whom Dr. Leakey envisages. They might have imported their food, but such large scale trade is unknown in this part of Africa, nor is there evidence of any such extensive cultivation, with concomitant habitation, in neighbouring highland areas. Hence one is forced to the conclusion that this settlement grew its own food, but under more favourable climatic conditions than prevail today.

40. Another piece of evidence supporting the desiccation theory is the large number of artificial rain ponds to be found throughout south Masailand. These, in fact, extend into Gogo country and were revealed in the thick deciduous bush cleared when the Ground Nut Scheme was in process of establishment. Though still awaiting accurate survey, it would appear that many of these ponds are much larger than the run off of the catchment area involved would justify. The people who made them, probably pastoralists from the pre-

41. Over-grazing, of course, is a factor which can bring about rapid environmental change. In neighbouring districts, e.g. Pare, where previous hillmen have come down to practise pastoralism on the plains without sufficient tradition of, or knowledge of the proper practices to be adopted there, the rate of denudation and consequent erosion is quite remarkable. Symptomatic of such change is the necessity which the railway and road authorities are experiencing for enlarging the culverts year by year in the area between Kisangiro and Lembene. Thus in certain areas and under certain conditions, Masai over-stocking and over-grazing may be a contributory factor to the change in environmental conditions, but in my opinion, it cannot account for all the changes which are taking place.

42. A prudent policy maker must take into consideration not only the encroachment of fly, the encroachment of bush capable of harbouring fly, but also the encroachment of Sleeping Sickness in all those areas where fly occurs. Once the fly is there, there seems nothing to stop the spreading of Sleeping Sickness save the absence of human beings. The Masailand bush areas are at the moment too sparsely inhabited to maintain a S.S. epidemic, but the sporadic cases that have occurred in the past at Tarangire, Essimngor and Meserani indicate how widespread are the possibilities of infection. In this connection, see my note on the Balanga Dorobo in Section IV above. The S.S. situation may rapidly change if prophylactics against animal trypanosomiasis prove to be a profitable proposition. If it were the success that people originally anticipated, it would mean that cattle could live in tsetse infested bush and humans would consequently follow their stock. This might result in numerous undesirable developments. In the first place, it might establish a sufficiently close man-fly contact as to support endemic Sleeping Sickness. Again the intrusion of a large number of host animals into the areas where in the past the fly has experienced difficulty in obtaining food might well result in a large increase in the fly population and hence accelerate the spread of fly and also encourage the maintenance of endemic Sleeping Sickness. Mr. Pevic comments:-

"I am naturally interested in the use of chemotherapeutics against trypanosomiasis. The little incident in 1951 when we kept a herd of cattle in quarantine for C.B.P.P. near Naberera without loss of any kind despite the fact that the area concerned was in fairly heavy fly gave rise to the development of a synthetic

The medical view, expressed by Dr. Hall, is as follows:-

"I entirely agree that entry of the Masai into, at present, uninhabited fly areas which may or may not contain a game reservoir of T.rhodesiensi presents interesting problems. I do not think that the injection of cattle into this area, which is heavily populated with game, would be significant. Since I have been in Northern Province, I have been anxious about the spread from the Mbugwe area either to Mto-wa-Mbu or Lokisale, but apart from the two cases which you quote, my fears have so far been unfounded."

43. A third point is that such cattle grazing in fly bush might form a reservoir to maintain T.rhodesiensi. We are told by the experts that large quantities of game, e.g. in Kiru, are capable of maintaining S.S. infection indefinitely and certain subsequent facts seem to confirm this contention. The same situation might occur if large numbers of cattle were likewise established in fly bush unless, of course, the prophylactic drug were capable of killing T.rhodesiensi as well as those other trypanosomes which cause disease in cattle. All the above are, of course, technical considerations on which I am in no position to pronounce, but they do strike me as worthy of attention by the experts.

44. If, on the other hand, we are to be faced for many years with the old fashioned methods of bush clearing, one point strikes me as worthy of consideration. The European who finds himself in a position to clear large tracks of land for his own use is looked upon as a benefactor. He is said to be contributing to the economic weal by the injection of capital, he is drawing the African off the land and so helping to relieve pressure, he is assisting him to pay his tax, giving him money to purchase trade goods, and thus is stimulating commerce and the collection of import duties. Such a man is enabled to employ African labour either because he has accumulated sufficient capital by the exercise of skill and forethought in his chosen vocation: alternatively, by the accident of inheritance, he has obtained funds which have, in turn, been obtained from some forebear who surpassed his contemporaries in wit and skill, and was so enabled to amass capital.

45. The Masai are in a position to employ labour for precisely these reasons, but for some reason when they do so, their action is resented by a number of people. Instead

hundreds of miles when even the much more numerous Rangi and Iraqw tribes find considerable difficulty in expanding their areas of habitation and maintaining such expansion against fly pressure on comparatively short fly fronts.

46. These are random thoughts properly outside my terms of reference and field of enquiry, but nevertheless I think they merit consideration against the background provided in the body of this report. The existence of the above technical problems reveals that the situation is one of complexity, just as the factual sections of this report show how fluctuating a situation the Masai fly position presents.

47. Of the funds available for Masai Development, by far the greater part has to date been spent on water development, not only in the matter of executing actual schemes, but equally in preliminary enquiry or general reconnaissance. The present enquiry has forcibly brought home to me, not only the necessity of siting water supplies in relation to the anticipated rather than the existing tsetse situation. It also reveals the possibility that water development, by altering the density of and distribution of the cattle population, may react favourably or otherwise on the tsetse situation. Further, there is a possibility that chemical prophylaxis against trypanosomiasis may have surprising effects on fly densities.

48. In view of the fact that an already fluid situation - as revealed by the historical survey - is likely to change even more rapidly in the future by virtue of these alien influences, I would recommend most strongly that a whole-time observer should be appointed in order that the whole position may be constantly kept under review by the experts. Ad hoc fly surveys are very necessary in connection with particular clearing schemes, livestock censuses reveal increases in cattle densities, and tax registers indicate changes in movement of human population. But I feel that only a man devoting himself full-time to such a study can satisfactorily correlate all these sources of information, and at the same time link up those little "straws in the wind" in the form of local gossip - the deaths of the Balanga Dorobo from suspected Sleeping Sickness is a case in point - by which changes in the fly situation may not only be kept track of but even anticipated. Funds spent on the salary and expenses of such an officer would, I am sure, be money well spent.

carry on his work without being called on to perform allied tasks such as supervising clearing gangs. He should not even be requested to carry out surveys in connection with reclamation schemes, unless they fit in with his investigation. On the whole his observations should be made in places where there is no danger of interruption by reclamation. I have no European officer, African Assistants or funds for the task. He will need accurate maps with which to work. Except for two small sections of Masailand no topographical surveys have been done since the German occupation. It is well known that the German maps may be very inaccurate and misleading over large areas. There is probably no inhabited section of Tanganyika that is so badly off for maps as Masailand. The Directorate of Colonial Surveys has recently made contracts with aerial survey companies for work in Tanganyika. Perhaps an immediate survey could be requested. The aerial photos would be most useful as well for studying the vegetation. I do not know if the aerial photographs that were taken by Landsurvey could be used in conjunction with Colonial Surveys for map making."

50. To this I would only add that Mr. Grant has added a wealth of accurate topographical information to the provisional maps recently published, which should certainly be reproduced and made available for departmental use as soon as possible.

(H.A. Fosbrooke)
SENIOR SOCIOLOGIST

Arusha,
23rd September, 1954.

A P P E N D I X I

MASAI TABLE OF AGE-SETS AND GENERATIONS

<u>AGE-SET</u>	<u>GENERATION</u>	<u>TENTATIVE DATE OF INITIATION</u>	<u>OUTSTANDING EVENTS ATTRIBUTED TO THE PERIOD WHEN THE GENERATION CONCERNED WERE MORAN</u>
?	MERISHARI	c. 1811	Fought with Adoru (a Tatog group?) at Manyara. Claimed Essimngor waters.
?	KIDOTU	c. 1825	Drove Kwavi from Olokee (Shambarai) and raided them in the Naberera area. Arush agricultural settlement encouraged by Laibon Subet.
?	DWATI I	c. 1839	Lumbwa having withdrawn, Masai commenced settlement round Naberera and penetrated as far as Kibaya.
KISHONGOP)	NYANGUSI	c. 1853	Southern penetration continued Masai settling round Naberera, Kibaya, etc.
MESHUKE)			
(Endowa))			
MERISHO)	LAIMER	c. 1867	Settlement of Talamai and Kiteto areas.
KITOIP)			
(Lenek) (Donok))			
KISHOMU)	DALALA	c. 1881	Famine, rinderpest and small pox dispersed the Masai and annihilated their cattle - 1888-1890.
(Meruturut))			
KIPONE)	DWATI II	1896	This age-set went on punitive expeditions with the Germans and re-established themselves with their share of the booty.
(Kishon))			
(No Left-Hand) in Kissongo))			
KILOPION)	DARETO	c. 1911	These were overlapping with the Dwati when World War I broke out.
(No Left-Hand) in Kissongo))			
KISALE)	DERITO	1926	
(Kitatin))			
(Kakishani))			
MERISHO)		1933	

A P P E N D I X II

MASAI NAMES FOR NEIGHBOURING TRIBES

Prefixes Wa and Ba in Bantu omitted.
Il in Masai represented by '-'

ARUSHA	Larusai
BARABAIG	-Mangati or Kijaru
BURUNGI	Burungi
CHAGGA	No generic, but specific groups as under:-
Machame	-Makami
Kibosho	-Kibosho
Kibongoto	Lasita
DOROBO	-Torobo, but divided into main groups as under:-
	-Aramanik - Central Masai
	-Balanga - South West
	-Mosiro - Kibaya-Kijungu area
GOGO	Laisanga
MBUGU	-Balaganga
MBUGWE	-Datwa lol Kuroto
MBULU	-Datwa of Lorogishu
MERU	Lameru
PARE	Lombarek
RANGI	-Kereri
SAMBAA	Lesambala
SANDawe	Lesandawe

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