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SLEEPING SICKNESS
BUREAU.

Skeleton Maps
— of —
Tropical Africa

SHOWING THE DISTRIBUTION
OF

TSETSE-FLIES AND
SLEEPING SICKNESS

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London:
SLEEPING SICKNESS BUREAU,
Royal Society, Burlington House, W.

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[October, 1909.]

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INTRODUCTION.

One of the maps shows the distribution of Sleeping Sickness and all the species of *Glossina*, the other that of Sleeping Sickness and *Glossina palpalis* alone. The information is sketchy because only undoubted records of the occurrence of these flies are charted. The maps are little more than a series of blanks held together by a slight framework of records; it is hoped that the blanks will be rapidly filled up. In the next edition which, if information comes quickly, should soon be called for, five more degrees of south latitude will be added.

Glossina palpalis, as here used, includes the form *wellmani*, Austen (syn. *bocagei*, França). No attempt has been made to distinguish between *morsitans* and *pallidipes* areas; of the two species *morsitans* seems to be by far the more wide-spread. The areas of *morsitans* charted do not indicate the actual limits of the species, which are difficult to ascertain and probably vary with the year and season. Endemic areas of Sleeping Sickness are not distinguished from areas where the disease has been imported* to fly-free regions. A list of the papers from which the data were collected will be found below.

NOTES ON THE DIFFERENT SPECIES OF TSETSE.

Glossina palpalis, Rob.-Desv.—This species has not been found on Lake Chad nor on the lower course of the Shari river north of Fort Archambault. It has, however, been taken in number near Fort Crampel on the Gribingui, a tributary of the Shari, and one specimen was caught on another tributary, the Ouhame. (These records are not indicated on the map.) KIRK'S Zambesi specimens are not charted; they were obtained in the year 1860, between Tete and the Victoria Falls. No specimens have since been obtained from the Zambesi, and it has been suggested that a label which had belonged to specimens of say, *morsitans*, may have been by error attached to specimens of *palpalis*. This is, of course, a possible explanation. The habits and habitat of this species are now fairly well known.

Glossina pallidipes, Austen.—Is considered by AUSTEN to be an eastern species. It has been caught once on the West Coast, in Liberia, just outside Sierra Leone (HARVEY). This species and *morsitans* are often associated.

Glossina morsitans, Westw.—Often associated with *pallidipes*, but more widely spread. This species, and perhaps *pallidipes*, extends as far south as Zululand. In most parts of Africa *morsitans* bites man viciously; in German East Africa this appears not to be the case (KOCH).

Glossina longipalpis, Wied.—A species allied to the last two and the western representative of *G. pallidipes*. One of KIRK'S Zambesi specimens was a *longipalpis*.

Glossina tachinoides, Westw. (syn. *Decorsei*, Brumpt).—The only species which has been found outside Africa. Its distribution is curiously interrupted, for there is no record of its occurrence between 20° E. and 38° E. It is very numerous on Lake Chad and its water ways, as well as on some parts of the Niger and Benue rivers. It is more closely allied in its habits to *Glossina palpalis* than to any other species. Of a collection received from the Benue, Northern Nigeria, AUSTEN wrote:—"In general

* Sleeping Sickness is sometimes described as sporadic in *palpalis* areas; this is, of course, not incorrect but it is best to reserve the term for areas where *Glossina palpalis* is not found, and where therefore Sleeping Sickness, if imported, remains sporadic.

appearance these specimens closely resemble small individuals of *Glossina morsitans* but may be at once distinguished from this species by their dark hind tarsi."

Glossina fusca, Walk.—When this species is associated with *palpalis*, as is frequently the case, it occurs in very small number. Two specimens, it may be, are caught at a spot where *palpalis* swarms. BRUMPT in his journey across Africa did not meet with a single *fusca*, but the species has been found since at many points on his line of route. When, on the other hand, *fusca* occurs by itself or with other species of *Glossina* it may be very numerous, (c.g. at Amani in German East Africa). The explanation perhaps is that *fusca* is primarily a species of open regions and is not well suited to the moist wooded haunts of *palpalis*. There is some evidence that *fusca* bites by night. Its pupæ have been found side by side with those of *palpalis*. It has a wide distribution as may be seen from the map. Kirk's Zambesi specimen (between Tete and the Victoria Falls) is not charted.

Glossina longipennis, Corti.—An East African species.

Glossina pallivora Bigot.—The rarest of all. It has been found by BOUET in the Ivory Coast Colony (not on the coast itself), by GRAHAM in Ashanti and by French observers on the Upper Sangha river.

NOTES ON THE DISTRIBUTION OF SLEEPING SICKNESS AND TSETSE-FLIES IN AFRICA.

Gambia.—" *Glossina palpalis* is practically ubiquitous in the Gambia." (DUTTON and TODD.)

Sierra Leone.—" *Glossina palpalis* seems to be omnipresent; *Glossina fusca* is scarcer." (HARVEY.)

Gold Coast.—" *Glossina palpalis* is widely spread. GOUZIEN reports Sleeping Sickness as endemic at Leo on the northern border of the Northern Territory.

Southern Nigeria.—" *Palpalis* is probably widely spread.

Northern Nigeria.—" Tsetse seem to be prevalent chiefly from 10° southwards; north of this limit transport animals can be used.

Rhodesia, North-eastern and North-western.—" *Morsitans* is widely present.

Portuguese East Africa.—" The eastern shore of Nyasa is free from all tsetse. *Morsitans* and *longipalpis* are mentioned as occurring in this country.

S. Thomas' Island is free from *palpalis*.

Senegal.—" Sleeping Sickness was formerly prevalent; its progressive diminution is believed to be due to the deforestation of the bank of the Senegal river.

Ivory Coast.—" *Glossina palpalis* swarms in the low country, and all the coast towns situated along the lagoons and streams are infected with Sleeping Sickness. (GOUZIEN and BOUET.)

Upper Senegal and Niger.—" Sleeping Sickness is prevalent everywhere in the bend of the Niger, where it forms several foci of conspicuous virulence, especially in the Lobi and Mossi districts. The territory of Zinder between Niger and Lake Chad seems quite free. BOUFFARD was unable to find Sleeping Sickness on the Bani river and is doubtful of its existence at Koury (northern point of Black Volta river).

Liberia.—" ZIEMANN stated in 1903 that Sleeping Sickness was fairly common.



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Angola.—The southern limit of *palpalis*, either in its typical form or in that known as *wellmani*, is unknown. The fly is said to occur somewhere on the Cunene river.

Arabia.—CARTER obtained many specimens of *Glossina tachinoides* in Southern Arabia; belts of tamarisk and of "cactus" were noticed.

*DATA WHICH SHOULD ACCOMPANY SPECIMENS OF TSETSE-FLIES.

1. *Locality*; name of colony and nearest station, river, lake, &c. (It is not possible in England to identify native villages.)
2. *Where caught*; on road, at ford, in village, close to village, far from human habitation, on railway, &c.
3. *Altitude* if known.
4. *Time of day*; (if caught at night, ? moonlight).
5. *Nature of country*: shaded river bank, grassy plain, dense forest, thorny scrub, &c. (On the shores of Tanganyika *palpalis* is found in reeds.)
6. Presence or absence of *water*, and if the latter its distance.
7. *Dry or wet season*; (state whether the grass or scrub is burned in the dry season).
8. Presence of *more than one species*; (this is easily over-looked as some species bear a close resemblance).
9. *Number of fly*; half-a-dozen, numerous, very numerous, swarms, &c.
10. *Ratio of the sexes*; (males usually outnumber females); does this vary with the season?
11. Are crocodiles present, and if so, are they numerous?
12. Are cattle, sheep, goats, horses or donkeys kept in the fly region?
13. Presence or absence of Sleeping Sickness.

SOME POINTS ON WHICH INFORMATION IS WANTED.

1. Do the flies bite through clothes? Their habit in this respect seems to vary with locality, perhaps with season.
2. What birds, insects or other animals prey on the flies?
3. Do the flies go to the water to drink?
4. Breeding grounds; enemies of pupæ; length of pupation at various seasons.
5. On what animals do the flies feed? (To find out, microscopical examination of their gut is necessary).
6. Are the flies or their pupæ associated with any particular tree or shrub?

If specimens do not accompany the information the name of the species should be added; information about tsetse-flies, if the species is not known, is usually worthless. Though it is *palpalis* about which the data are chiefly wanted careful observation of any other species is almost equally useful; *e.g.* we know nothing of the breeding grounds of *morsitans* or *tachinoides* and not much about those of *fusca*.

Observations carried on month after month at one spot are of more value than spasmodic research in several districts.

* Specimens and data may be sent to the Sleeping Sickness Bureau, or preferably to the Scientific Secretary, Entomological Research Committee (Tropical Africa), British Museum (Natural History), Cromwell Road, London, S.W.

NOTE.—The Maps may be obtained, mounted on canvas, from the Sleeping Sickness Bureau, price 1s. 6d. each.

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† Contains a map of distribution of Sleeping Sickness or of Tsetse-flies.

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* Contains a map of distribution of Sleeping Sickness or of Tsetse-flies.

SKELETON MAP OF TROPICAL AFRICA SHOWING DISTRIBUTION OF TSETSE FLIES





Scale = $\frac{1}{7,500,000}$

REFERENCE

- Sleeping Sickness
 - Glossina palpalis*, Rob-Desv.
 - Glossina fusca*, Walk.
 - Glossina morsitans*, Westw. & pallidipes, Austen.
 - Glossina longipalpis*, Wied.
 - Glossina tachinoides*, Westwood.
- Sleeping Sickness ascertained to be absent. **S** - perhaps present?
- Glossina pallicera*, Bigot, occurs in the Gold Coast, Ivory Coast and perhaps on the Upper Benue and Upper Sanga (French Congo).
- Glossina longipennis*, Corb., in Somaliland, British East Africa and perhaps on Lake Rudolph.
- Glossina maculata*, Newstead, was collected on the Congo at 3°S.
- International Boundary
- Provincial

