

The Approximate Distribution of the Genus Glossina.

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THE compilation of the map accompanying this paper arose from a desire to demonstrate at a glance to veterinary students the approximate distribution of the genus *Glossina*, a knowledge of which is especially useful in discussing problems such as the distribution of cattle. If we consult the literature of the past fourteen years nowhere do we find a map giving the information in this form. Steffan (1922) is more concerned with the approximate limits of each of the four groups, viz. *fusca*, *brevipalpis*, *morsitans*, and *palpalis*, and apart from the intersections of the many lines indicating limits of distribution, a clear idea of the *Glossina* and non-*Glossina* regions is not possible. Austen and Hegh (1922) while furnishing a written description of the general geographical distribution do not supply a map. Newstead (1924) gives details concerning the distribution of the several species and to avoid the maze and intersecting lines, four maps are employed. Finally Hegh (1929) in dealing with the same aspect includes a map, which indicates the northern and southern boundaries, but within this area there are thousands of square miles of *Glossina*-free territory eminently suitable for cattle.

Admittedly the task is difficult especially on a small scale map, but it is this feature we wish to represent in this paper.

Accordingly an appeal for data was issued to the administrations of the various territories concerned, and thanks to the generous response it has been possible to compile the accompanying map. In the following section the replies are commented upon where necessary.

Country and (Reference).

French West Africa and French
Equatorial Africa.

(Letter 1250 of 14.5.35 from the
Director of the Institut National
d'Agronomie Coloniale—Ministry
of Colonies—to the Director of
Veterinary Services, Pretoria.

Comments.

Accompanying the letter was a map showing the approximate limit of distribution of the genus *Glossina*. This was prepared by the Entomological section of the Ministry of Colonies in collaboration with Professor Roubaud of the Institut Pasteur.

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<i>Country and (Reference).</i>	<i>Comments.</i>
Sierra Leone. (Letter A/76/29 of 28.5.36 from Colonial Secretary to Director Veterinary Services, Pretoria.)	Reference was made to Dr. Simpson's researches published in <i>The Bulletin of Entomological Research</i> IV, 1913, from which it would appear that the genus <i>Glossina</i> is widely distributed.
Gold Coast. (Letter 573/30/1911 of 24.3.36 from Principal Veterinary Officer to Director of Veterinary Services, Pretoria.)	While the accompanying map indicates widespread distribution, this is confirmed by the following in the letter: "With regards <i>Glossina</i> you may take it that the whole country is infested". Reference is made to <i>G. palpalis</i> , <i>G. tachinoides</i> , <i>G. morsitans</i> , <i>G. submorsitans</i> , and <i>G. longipalpis</i> being prevalent.
Nigeria. (Letter V. 89/1932/108 of 1.1.36 from Chief Veterinary Officer to Director of Veterinary Services, Pretoria.)	The map received from Nigeria shows an extensive distribution. In fact the letter states that in "Northern Nigeria the infection is widespread, especially during the rains, but is light. We estimate that 33 per cent. of the cattle in the North are infected, but it is only in <i>G. morsitans</i> country where the mortality is heavy."
Gambia. (Letter 607/1928 of 16.6.36 from Colonial Secretary to Director of Veterinary Services, Pretoria.)	"Tsetse flies are found along the whole length of the Gambia river, except in Bathurst where there is no suitable vegetation and along the coast of the estuary. They are also to be found in all patches of thick bush where there is a branch river . . . or swamps lasting through the dry season". <i>G. palpalis</i> is the commonest type of tsetse, but <i>G. tachinoides</i> and <i>G. morsitans</i> are also reported. (Letter 607/1928 of 16.6.36). See map accompanying Dr. J. J. Simpson's report on "Entomological Research in British West Africa—Gambia". <i>Bull. Entom. Res.</i> Vol. 11, Part 3, 1912.
Portuguese Guinea and Angola. (Letter 82 of 6.4.35 from the Chief of the Reparticao de Saude, Ministry of Colonies, to Director of Veterinary Services, Pretoria.)	While the names of <i>G. palpalis</i> , <i>G. longipalpis</i> , <i>G. submorsitans</i> , and <i>G. fusca</i> are merely mentioned for Portuguese Guinea, the approximate distribution of <i>G. palpalis</i> and <i>G. morsitans</i> in Angola is traced on a map.
Sudan. (Letter 13-A-6 of 3.11.34 from Director of Veterinary Services, Khartoum, to Director of Veteri- nary Services, Pretoria.)	A copy of the paper "Distribution of Tsetse flies in the Sudan" by Bedford, H.W., in the <i>Bull. Entom. Res.</i> XXI (3) Oct. 1930 was supplied.
Uganda.	The approximate areas occupied by the genus <i>Glossina</i> were indicated on a map.
Kenya. (Letter Fly/1/ of 16.10.34 from Chief Veterinary Officer to Director of Veterinary Services, Pretoria.)	A map "prepared a few years ago by, I believe, the Medical Entomologist . . . Nairobi" was received. It indicated record of <i>G. palpalis</i> , <i>G. pallidipes</i> , <i>G. brevipalpis</i> but added to this by the Veterinary Entomologist, Kabete, were further details regarding " <i>G. swynnertoni</i> , <i>G. fuscipleuris</i> , <i>G. austeni</i> and <i>G. longipennis</i> ."
	A more suitable map prepared by Dr. Lewis, Veterinary Entomologist, Kabete, was supplied later. This included "the small border areas" of Abyssinia and Italian Somaliland.

Country and (Reference).	Comments.
Tanganyika. (Letter SE 38/360.0 of 12.11.34 from Senior Entomologist to Director of Veterinary Services, Pretoria.)	(1) "I (i.e. Potts, W. H.) am hoping shortly to publish a map showing the details of the distribution of the different species of Glossina". In the meantime, thanks to Dr. John Phillips, now of the University of the Witwatersrand, Johannesburg, we received a photograph of a map compiled from data collected by Messrs. C. F. M. Swynnerton and W. H. Potts between 1922-1928. This refers in particular to the following species <i>G. morsitans</i> , <i>G. pallidipes</i> , <i>G. brevipalpis</i> , <i>G. austeni</i> and <i>G. swynnertoni</i> . (2) Potts recommended the perusal of the Glossina map accompanying the <i>Annual Report of the Veterinary Department</i> , 1925.
Belgian Congo. (Letter 5/1210 of 3.10.35 from the Ministry of Colonies, Brussels, to Director of Veterinary Services, Pretoria.)	Accompanying the reply was a copy of the <i>Bull. Agr. du Congo Belge XXV</i> (4) Dec. 1934, which contains the interesting paper by E. Hegh "Les quato ze espèces de tsétsés du Congo Belge". Thanks to Dr. M. Moreau (letter 253 of 7.6.36) of Elizabethville a map showing the distribution in Katanga of <i>G. palpalis</i> , <i>G. morsitans</i> , <i>G. pallidipes</i> , <i>G. brevipalpis</i> and <i>G. fusca</i> was also received. Further information regarding this territory has been obtained from " <i>Manson's Tropical Diseases</i> " which only indicates the areas in which human sleeping sickness occurs.
Nyasaland. (Letter 681/63/34 of 30.10.34 from Acting Chief Veterinary Officer to Director of Veterinary Services, Pretoria.)	(1) "A map . . . showing the distribution of tsetse-fly" was received. This "has been made from records kept" by the Veterinary Department at Zomba. (2) "Practically the only species found is <i>G. morsitans</i> ."
Northern Rhodesia. Southern Rhodesia. Bechuanaland Protectorate.	See Maps C B and A in "Distribution of Glossina in the Bechuanaland Protectorate" in the <i>18th Report of the Director of Veterinary Services and Animal Industry</i> , 1932.
Mozambique. (Letter 191 of 16.5.35 from Acting Director of Veterinary Services, Lourenco Marques to Director of Veterinary Services, Pretoria.)	A detailed map showing the distribution of the genus Glossina was received. Also a copy of the publication (1930) <i>Distribuição geografica das glossina em Mocambique</i> describing Dr. S. Napoles' investigations in the District of Mozambique.
Zululand.	See Map 1 in "Nagana in Zululand" published in the <i>13th and 14th Reports of the Director of Veterinary Education and Research</i> , 1928.
Spanish Guinea and Liberia. No information could be obtained.	The territory is left unshaded.

CONCLUSION.

It is granted that even within the area showing the distribution of the genus Glossina there are regions, e.g. in the Gold Coast and Cameroons, where tsetse flies are absent and cattle abound (see "A Contribution to the Study of African Cattle", by Curson, H. H. and Thornton, R. W.). Nevertheless we submit that the general geographical distribution as here shown is at least as satisfactory as that given in the past.

ACKNOWLEDGMENT.

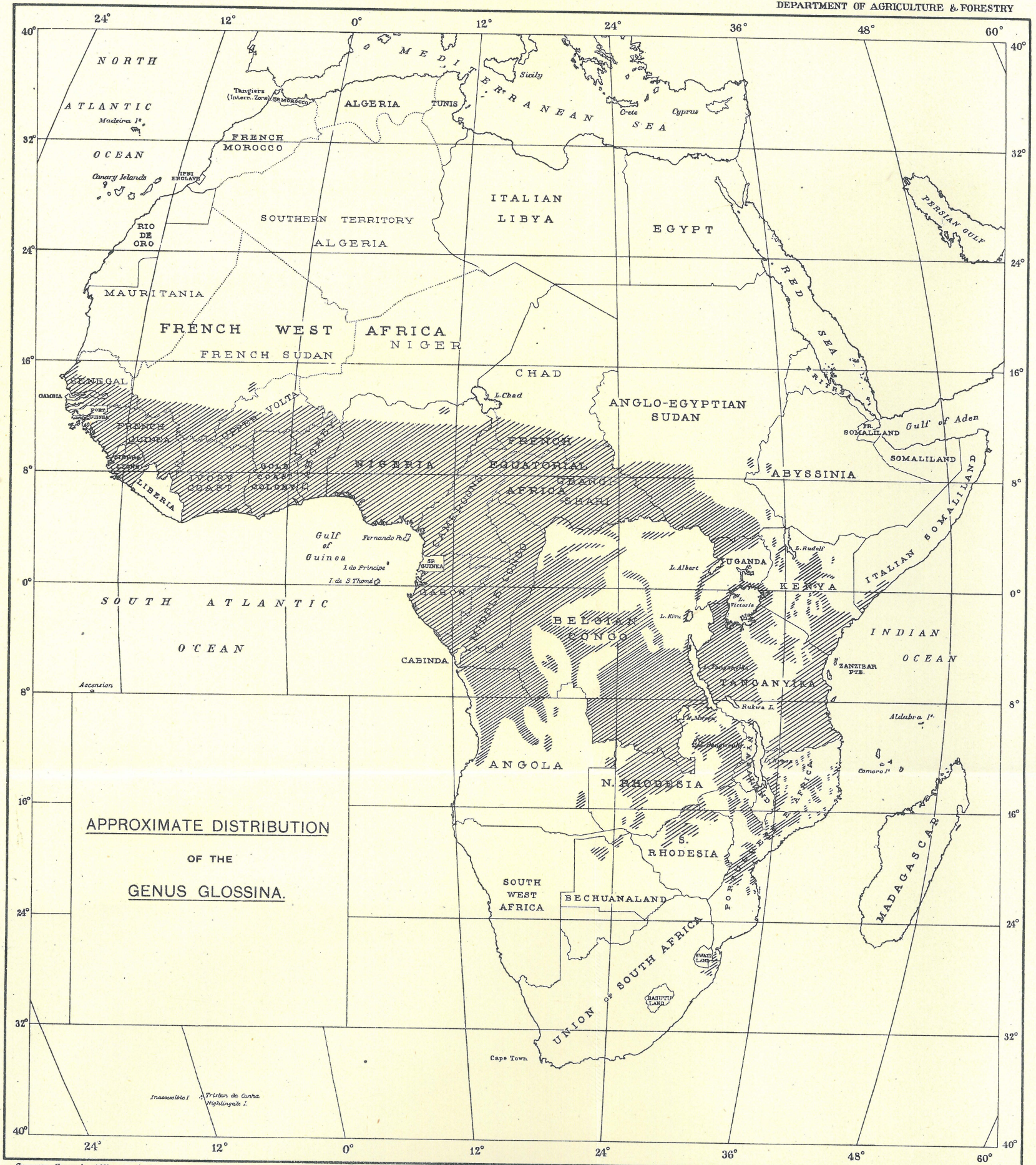
We desire to express our indebtedness to all those who assisted in this compilation. Obviously without their co-operation this task would have been impossible. A special word of appreciation is due to Messrs. C. G. Walker and T. Meyer for the drawing and photographic work respectively.

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