

some learned society where those interested will have the opportunity of making such an examination.

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Protozoal Parasites in Cainozoic Times.

IN the issue of NATURE for October 3, 1918 (p. 95), which has just reached me, is a note on Prof. T. D. A. Cockerell's discovery of two new species of *Glossina* in the Miocene shales of Colorado. It is said that "Osborn's suggestion that many large Cainozoic mammals in America may have been destroyed by fly-borne parasites is rendered highly probable by the wider range of tsetse-flies now indicated by Prof. Cockerell."

I do not see that the conclusion is justified. The co-existence in space and, possibly, time of a species of blood-sucking fly and certain large mammals

THE PERU-BOLIVIA BOUNDARY COMMISSION.¹

THE search for a scientific frontier has taken men into many wild and unexplored regions of the earth's surface, and has, in the aggregate, helped in the accumulation of no mean amount of new geographical knowledge. Those familiar with the true foundations of the map of Africa know well that in many areas the surveys executed by boundary commissions are still the only authorities for geographical positions, and that the boundary surveyor was often the first white man to force his way into hitherto unknown parts. As, further, the surveyor brings with him both the equipment and the trained technical skill necessary to garner the very utmost amount of

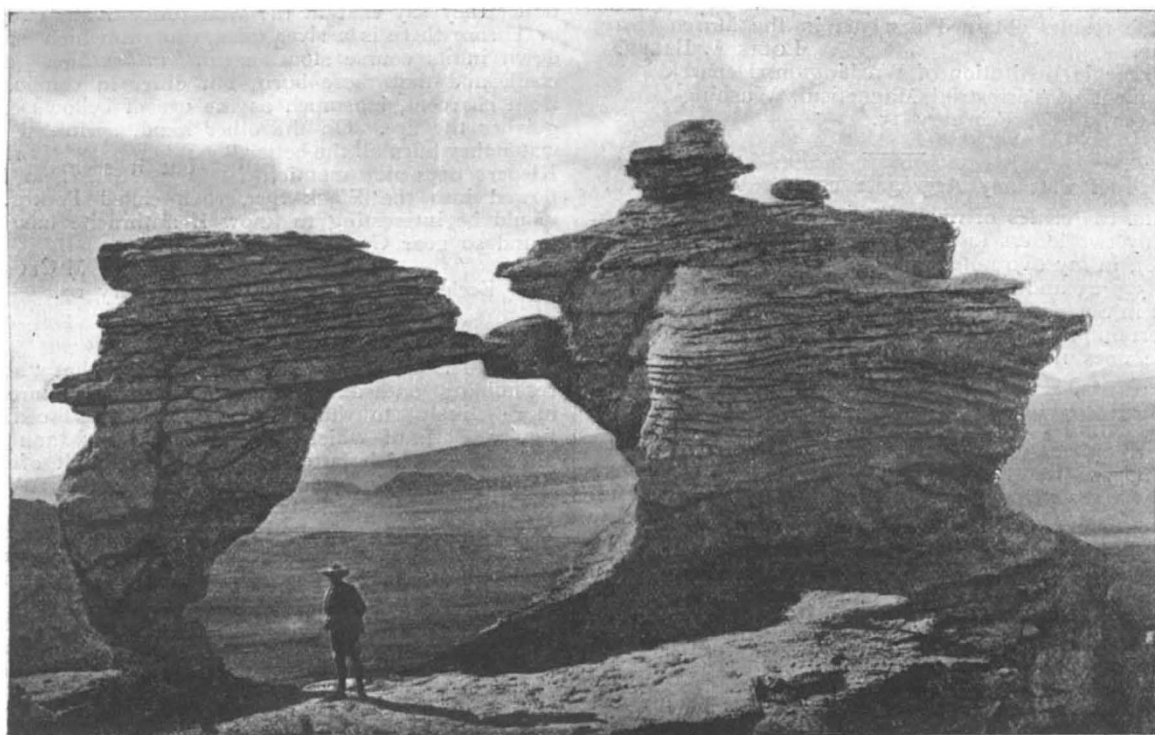


FIG. 1.—Cojata Pampa, wind-eroded rocks. From "Peru-Bolivia Boundary Commission, 1911-13."

affords no grounds for concluding that protozoal parasites carried by the former destroyed the latter. Do blood-sucking flies in America at the present day destroy wild animals through the medium of the Protozoa they carry?

I am unaware of any evidence at present that wild animals in Africa are destroyed by the Trypanosomes of which they are the hosts and *Glossina* the vector; indeed, there is very definite evidence to the contrary that buck do not suffer in the least from the continued presence in their blood of Trypanosomes which are pathogenic to man and his domestic animals.

What grounds, then, are there for the assumption that the adaptation of such Protozoa to their hosts was any less perfect in Cainozoic times than at present?

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detailed and trustworthy information in the course of his rapid traverse of the country, it follows that, next only to the closely settled districts, the boundary lines in Africa are now the best known regions of the continent.

The conditions in South America are somewhat similar, but, owing to the fact that most of the international boundaries are almost inaccessible, lying either on the great heights of the Andine Cordillera or hidden in the impenetrable forests of the Upper Amazon and its tributaries, the need for actually defining these frontiers on the ground has not generally

¹ "Peru-Bolivia Boundary Commission, 1911-13." Reports of the British Officers of the Peruvian Commission. Edited for the Government of Peru by the Royal Geographical Society of London. Pp. xi+242+maps. (London: Cambridge University Press, 1918.)