

MINISTERIO DE FOMENTO
Dirección de Aguas y Agricultura

OFICINA DEL
Director de Estaciones Entomológicas
Entomólogo del Estado

Casilla de Correo 1237,

LIMA, Perú,

July 27th, 1913

Dr. Adolpho Lutz,

Instituto Oswaldo Cruz, Rio de Janeiro.

My dear Dr. Lutz:-

Just at the time of the arrival of your interesting letter of May 27th, suggesting *Phlebotomus*, *Ceratopogon*, etc., as possible agents in the transmission of verruga, my attention was specially called to *Phlebotomus* as a highly probable agent by the results of Marett and Newstead, publication of which reached me at the same time. It immediately struck me that *Phlebotomus* must be present in the verruga zones and must be the verruga transmitter. Accordingly I spent my first night in the verruga zone proper on June 25th, and found *Phlebotomus* present. It is a new species, and I have sent in description of it for publication.

I have injected a dog with the *Phlebotomus* and secured what I believe to be verruga eruption. I send you a short article or two, and will send more later on. Further experiments are already under way, though it is difficult to get many of the *Phlebotomus* at this season. I caught 45 the other night at Verrugas Canyon by sitting up all night, a dozen or so of which arrived at the laboratory alive and are now biting a guinea-pig. The others I have injected into a second dog. These gnats do not come out till after sunset or about dark, and keep coming to the houses all night, but fewer arrive after midnight. There is no doubt that it is the verruga vector. I have demonstrated it from the entomological evidence alone, before getting any transmissional result. It is the only crepuscular bloodsucker confined to the verruga zones.

Thank you for the determinations of the tabanids. Also thank you for putting me on the list to receive the *Memorias* of the Institute. I will send copies of my papers to the Institute.

I have written to Splendore, and thank you for his address.

Conorhinus does not occur in the verruga zones so far as I have been able to determine. A conorhinid often came to light in Piura, but I do not know that it sucks blood, and I have never been able to find any elsewhere in Peru outside of the montanya on the east side of the Andes.

In connection with your work on *Simulium*, I wish to point out that my *S. occidentale* is certainly distinct from *meridionale*, of which Coquillett erroneously stated it to be a synonym. Johanssen later followed Coquillett. Neither one saw fresh material.

I published on *Oecacta furens* in Jamaica, in *Journ. Inst. Jamaica*, 1895, p. 381, but have no copy of this. I published on same species in Mexico, in *Annals & Mag. Nat. Hist.*, Jan., 1897, pp. 17-18. It is called chaquista on the Tabasco coast. What I take to be the same I found in immense number at daybreak on west coast at Topolobampo, in September, 1909. In Tabasco it never appears till twilight, and it is strictly confined to the vicinity of the beach, not reaching Frontera town. Its habits are similar elsewhere.

Yours most sincerely,

C. H. T. Townsend