

THE FRESH-WATER EELS OF AUSTRALIA.  
WITH SOME REMARKS ON THE SHORT-FINNED SPECIES OF  
*Anguilla*.

By

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(Figures 1-14.)

I. INTRODUCTION.

In the course of my work in describing the fresh-water eels of the genus *Anguilla* throughout the world, I have now come to those of Australia. Prior to this were the descriptions of the eels of Europe, America and Japan (1913, 1915), of the eels in the tropical part of the Southern Pacific (1927) and of the eels of New Zealand.<sup>1, 2, 3, 4</sup> In all of these works I have emphasized the value, or more properly the necessity, of employing numerical characters such as the number of vertebræ and of fin-rays for the classification of the different species of the genus *Anguilla*, which are often very closely related. It is only since the introduction of modern variational-statistic methods that complete certainty has been attained in the classification of the fresh-water eels; and the use of such numerical characters as the number of vertebræ has further rendered it possible to distinguish between the species in their very youngest stages, even when, as tiny, transparent larvæ, they are found floating out in the ocean, far from land.

Most of the more important museums throughout the world have, with the greatest liberality, accorded the Carlsberg Laboratory facilities for investigating their material of the genus *Anguilla*, and taking X-ray photographs of the same. We were thus enabled to include in our investigations all existing types, as well as many other specimens of fresh-water eels mentioned in earlier and recent

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<sup>1</sup> Johs. Schmidt.—“First and Second Report on Eel Investigations” (Rapports et Procès-Verbaux du Conseil International pour l'Exploration de la Mer, Vols. XVIII and XXIII, Copenhagen, 1913 and 1915).

<sup>2</sup> *Id.*—“Les Anguilles de Tahiti” (La Nature, Paris, 15 July, 1927, reprint paged 1-8).

<sup>3</sup> *Id.*—“The Fresh-Water Eels of New Zealand” (Transactions of the New Zealand Institute, Wellington, N.Z., Vol. lviii, No. 4 (in the press)).

<sup>4</sup> *Id.*—“The Breeding Places of the Eel” (Smithsonian Report for 1924 (1925), p. 279. This includes a survey of the results of my cruises in the Atlantic in order to ascertain the breeding places of the eel and the migrations of the eel-larvæ.