it was then that denitrification was detected, apparently under aerobic conditions.

In addition to the size and shape of the flask, other factors such as the volume of medium, the organism and the speed and amplitude of shaking may affect the aeration. The work is being continued with several other strains of denitrifier and the results will be described in detail elsewhere.

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The Long-finned Tunny, *Germo alalunga* (Bonnaterre), in British Seas

MR. S. S. PICKARD has kindly supplied details and a photograph of a long-finned tunny, albacore or germon, *Germo alalunga* (Bonnaterre), found alive in a shallow pool at low tide at Morecambe, Lancs, on August 14, 1954. The fish measured 32 in. from snout to caudal fork, had a pectoral fin 12 in. in length and weighed 22 lb. This is only the twelfth British record of the species, the other eleven being as follows, the numbers indicating the footnote references 1-11: (1) "Several years" prior to 1846 (Mount's Bay, Cornwall); (2) summer of 1846 (Mount's Bay, Cornwall); (3) March 13, 1861 (Chesil Beach, Weymouth, Dorset); (4) August 26, 1865 (mouth of River Exe, Devonshire); (5) October 25, 1897 (Silloth, Solway Firth); (6) June 1900 (off the Orkney Is.); (7) autumn 1901 (coast of Wexford); (8) August 1914 (Dugort, Achill Island, Co. Mayo); (9) November 1932 (Lochgailhead, Firth of Clyde); (10) June 20, 1934 (Kilmun, Holy Loch, Firth of Clyde); (11) September 16, 1947 (west of Dingle, Co. Kerry).

Germo alalunga is essentially a warm-water species, ranging widely through the Atlantic from Massachusetts to the West Indies and from the Orkneys to the Cape of Good Hope, and entering the western Mediterranean. Off Spain, in the Bay of Biscay and towards the approaches of south-west Ireland, there is a considerable fishery for it; but Moreau¹² gives the Bay of Morlaix as the eastern limit along the Breton coast and states that the germon is extremely rare in the Channel beyond there. Saemundsson¹³

Fig. 1. Long-finned tunny, stranded at Morecambe on August 14, 1954

Fig. 2. Distribution of *Germo alalunga* in British waters. The cross-hatched area shows the approximate northern limits of the French germon fishery

gives no records for Iceland, nor Smitt¹⁴ nor Andersson¹⁵ for Scandinavia. A solitary 'record' for Holland ascribed to van Bemmelen¹⁶ by several authors proves to be unfounded: van Bemmelen writes generally of unidentified tunny in the North Sea and mentions two European species, but with no positive identification or presumption of *G. alalunga* in Dutch waters.

This, then, is a fish which is near the northern limits of its range in British seas, and its occurrence is of interest in relation to modern studies¹⁷ on the effects of climatic fluctuations on the distribution of northern faunas. The excellent work on the food of the germon by Legendre¹⁸ and by Bouxin and Legendre¹⁹ will serve equally well as an introduction to its general biology and to relevant literature.

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