	Vertebræ mean (range) *n*	Dorsal fin-rays mean (range) *n*	Anal fin-rays mean (range) *n*
A. lanceolatus			
Lesauvage		58	30
Plymouth	66·86 (66–69) 70	(55–58) 22	(28–30) 22
Irish Sea, Port Erin	66·88 (66–68) 40		
North Sea[2]	66·73 (65–69) 126	56·24 (54–58) 125	29·55 (27–31) 127
Baltic[2]	66·85 (65–69) 293	56·02 (53–59) 291	29·78 (27–32) 292
A. immaculatus			
Plymouth	71·86 (70–74) 42	60·23 (59–62) 34	32·61 (31–34) 34
Douananez[3]	72·09 (70–74) 78		

the presence in *lanceolatus* of a prominent black spot on each side of the snout just above the middle of the upper jaw. The snout of the new species is uniformly dark. Referring to this difference of marking, the name *Ammodytes immaculatus* is proposed for the new species.

It is evident from the vertebral counts given by Forest[3] that his specimens from Douananez belong to *A. immaculatus* and not to *A. lanceolatus*. Further observations on the new species are in course of preparation.

Until recently, only two species of sand-eel were commonly known in northern European waters: *A. lanceolatus*, the greater sand-eel, and *A. tobianus*, the lesser sand-eel. In 1934, Raitt[4] described a new species, *A. marinus*, occurring very abundantly in Scottish waters, and now known to have a wide distribution in the north-eastern Atlantic. He also found *Gymnammodytes semisquamatus*, the Atlantic smooth sand-eel, to be abundant off Scotland, although previously only a single specimen had been recorded from British waters[5]. *A. immaculatus* now increases the number of north European species of Ammodytidæ to five. This is of interest in relation to Raitt's statement, based on the work of other investigators, that "Sand-eels have long been recognized to be of highest importance in the economics of the sea. They form a large proportion of the regular diet of almost all our food fishes. . . ."[4]

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A New Strain of *Leptospira* in Israel

An outbreak of an epidemic of leptospirosis began in Israel in the middle of 1949 and is still continuing. From June 1949 until April 1950, more than a thousand cases were observed in a narrowly limited district—the plain of the Sharon. Some cases were very severe, showing hæmaturia, oliguria, azotæmia, jaundice, meningitis and episcleral injection; the death-rate was 2 per cent. Most of the sera of the patients agglutinated *Leptospira grippo-typhosa* and *Leptospira bovis*, the titres ranging from 1 : 200 to 1 : 20,000.

The course of the epidemic did not correspond to that caused by *Leptospira bovis*, which was described by Bernkopf *et al.* in 1947 [1]. According to these authors, cattle infected with *Leptospira bovis* caused the epidemic of 1946–47, which affected mainly butchers, veterinarians and other persons handling infected meat. For the following reasons, the present epidemic must be ascribed to another source: its intensity and suddenness; its appearance in a limited area only, whereas infected cattle were found throughout the country without causing leptospirosis elsewhere; the appearance of the disease in settlements having healthy cattle or no cattle at all; and the statistically established fact that most of the patients were growers of vegetables.

Simultaneously with the outbreak, there was a distinct rise in the rodent population of the country, and a relation to the epidemic was suspected. Various rodents (*Rattus norvegicus*, *Mus musculus*, *Meriones tamaricinus* and *Microtus guentheri*), caught in the area of the epidemic, were examined for *Leptospira* and corresponding antibodies. Cultures were made on Schueffner's medium from the urine, kidneys, liver and blood, and dark-field examinations were carried out with the urine and kidneys. Furthermore, agglutination tests were made, with *L. grippo-typhosa*, *L. bovis* and a *Leptospira* isolated by us from the blood of a patient of the present epidemic. Absorption tests showed that serologically this last strain was related to *L. grippo-typhosa* and *bovis*, but not identical with either of them.

No leptospiras or their specific antibodies were found in mice and rats. Sera of 70 per cent of the voles caught in the infected area showed agglutinating titres between 1 : 200 and 1 : 3,000 against the three strains; leptospiras were found upon dark-field examination of their kidneys and were cultivated on Schueffner's medium. Neither antibodies nor leptospiras were found in voles caught in non-infested areas.

Leptospira-free voles, bred in the laboratory for several years, were infected by intraperitoneal injection of leptospira isolated from a human case. They appeared in the kidneys after eight days, and were excreted with the urine in large quantities although the animals showed no outward signs of illness. Three-weeks-old albino mice infected in the same way showed leptospiras in the blood during the first four days after injection. From the fifth day onwards, leptospiras could no longer be found in the blood but appeared in the kidneys, and from the sixth or seventh day onwards they were excreted in the urine in very large numbers, at least ninety-nine days after the infection.

This method is now being used for the isolation of leptospiras and the diagnosis of leptospirosis: blood taken from patients during the first five days of illness gave negative results on Schueffner's medium, but mice infected with it excreted leptospiras in the urine two to five days after the infection.

As neither *L. grippo-typhosa* nor *L. bovis* can be found in the urine of the mice following an intraperitoneal injection, it has now become possible to differentiate the new strain from them.

The etiology of the present epidemic has thus become clear. A new strain of leptospira is transmitted by a native vole (*Microtus guentheri*) which lives in a region characterized by heavy soils, excretes with its urine leptospiras in vegetable plantations, and causes an infection of gardeners and agricultural workers.

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