

north—as a drift with the currents. The negative fact that none of the smaller larvæ have appeared north of the Azores, and none of the larger ones south, seems to favour such an explanation. The further fact that none of the transformation stages, previously found so abundantly on the continental slope, were found in mid-ocean supports the same view. Nevertheless, I consider it dangerous to form any definite opinion from negative facts concerning such vast ocean expanses, where so few investigations have as yet been made.

As a provisional working hypothesis I should be inclined to regard the continental slope as the area where the transformation of the larvæ takes place, and the southern central part of the North Atlantic ocean as the probable spawning area of the eel.

Fig. 5 gives information as to the depths at which the *Michael Sars* caught the eel-larvæ. The youngest specimens were mainly found by towing a net with 100 metres

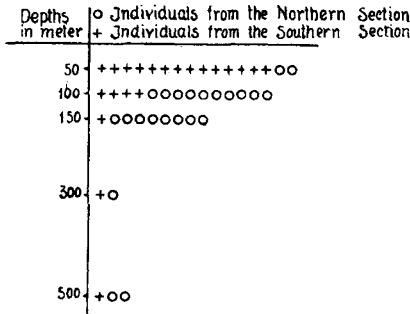


FIG. 5.

of wire out, or in a depth of about 50 metres. The eldest stages were found in nets towed with 200 metres of wire out, or at a depth of about 100 metres. The *Michael Sars* employed for these depths mostly silk nets with mouths of 1 m. in diameter, and no trawls. Otherwise larger catches of eel-larvæ might have been procured. I should recommend that future investigators look for the eggs and the smallest larvæ from the surface down to 100 metres, say between the Azores and Bermudas, in winter. I hope that this information will in this way be found useful.

JOHAN HJORT.

Bergen, November 7.

Are Mules Fertile ?

In the *Nuevo Mundo* of Madrid for October 27 it is stated that a mule, belonging to Don Carlos Gimenez, of Argamasella de Calatrava, recently gave birth to a foal. From India, South Africa, and America reports have reached the writer about fertile mules, but in no single instance has the evidence of fertility been altogether satisfactory. In the present case the information thus far submitted is very meagre. Nothing is said about the breeding of the reputed parent of the foal. She may be a she-ass with the conformation of a mule, or a mule in milk which succeeded in stealing a mule foal from a mare. A Przewalsky-horse hybrid bred at Penycuik proved fertile, but all the ass and zebra hybrids experimented with during the last twelve years proved sterile. The male zebra-horse hybrids were sterile because they never succeeded in maturing perfect sperms. The hybrid "Romulus," e.g., had all the instincts of a pony stallion, and, so far as one could judge with the naked eye, he was capable of getting foals. When, however, a microscopic examination was made, it was ascertained that the sperms were quite or almost tailless—at the most the length of the flagellum was never more than three or four times the diameter of the head, and it was immobile. Why female mules are infertile has not yet been determined.

Sterility in birds seems sometimes to be due to structural changes in the germ cells induced by in-and-in-breeding. It is conceivable that similar changes may sometimes result from intercrossing. It must be admitted that the

photograph reproduced in the *Nuevo Mundo* supports the view that the Calatrava foal is a mule, and that the reputed mother is also a mule.

But further and more definite information is wanted before a decision can be arrived at.

J. C. EWART.

The Origin of Dun Horses.

THE cases quoted by Prof. Cossar Ewart from Mr. J. B. Robertson in *NATURE* of November 10 would be good evidence against the theory that every dun horse must have at least one parent dun or grey if the data in the Thoroughbred Stud-book were absolutely trustworthy. This they are not, and all the cases quoted by Prof. Ewart have in them a very considerable element of doubt. Let me indicate these elements by placing the cases quoted in one column, in reversed chronological order, and the necessary remarks in another column parallel.

Cases Quoted.	Remarks.
Bay-dun filly, foaled 1907, dam, Unexpected.	This filly is registered "b. or dun."
Dun colt, foaled 1897, dam, Lobelia.	This colt is registered "b. or dun."
Dun filly, Sarah Curran, foaled 1892, dam, Cellulites.	In vol. xvii. Cellulites' foal of 1892 was said to have died, but in vol. xviii. the alleged dead foal becomes Sarah Curran.
Light dun filly, foaled 1886, dam, Danseuse.	This filly is registered "bay."
Dun or chestnut filly, Saneta, foaled 1884.	The breeder had doubts as to this filly's colour.
Dun filly, foaled 1829, dam, Octavia.	This filly died when two days old.
Dun filly, foaled 1763, dam, Miss Thigh.	This filly had eight foals the colours of which were registered, and not one was dun.
Dun colt, foaled 1730, dam, Young Kitty Burdett.	This colt's sire was grey.

The last case quoted is the mare Silverlocks, from which nearly all the duns in the Stud-book are descended. Silverlocks is credited with five foals, the first of which was foaled in 1738, and four of these were dun. Three of these four were by a bay or brown horse. So Silverlocks herself was presumably a dun. The Stud-book assumes that this mare Silverlocks was identical with a chestnut mare Silverlocks foaled in 1825. Either the 1825 Silverlocks was a dun, not a chestnut, or the two mares were different animals.

JAMES WILSON.

Royal College of Science, Dublin, November 15.

The Cocos-Keeling Atoll.

IN stating the depths to which the bores in the Funafuti lagoon were carried, and in drawing his deductions from them, the reviewer (*NATURE*, November 10) has fallen into a very curious error. He states that the first bore was driven to a depth of 41 fathoms, and the second to nearly 36 fathoms, but he overlooks the fact that he is giving the measurements from the surface of the lagoon water, and not from the lagoon floor.

The bores were started in 101 feet of water at low-water spring tide, and therefore, of the 41 and 36 fathoms mentioned by the reviewer, the top 17 fathoms in each case consist of nothing but lagoon water. The actual bores made into the lagoon bed penetrated no more than 24 and 19 fathoms respectively, or, as I pointed out in my last communication, a maximum of 144 feet.

F. WOOD-JONES.

My depths of 41 and 36 fathoms were not intended in any way as a correction of Mr. Wood-Jones's letter. The important point is that lagoon débris *only* occurred above 27 fathoms; there was 10 fathoms of it. Below this depth we get coral rock.

It is a long time since any discussion has been held in this country on coral-reef formation, while much work