

OUR BOOK SHELF

Description of a Specimen of Balanoptera musculus, in the possession of the Boston Society of Natural History.
By Thomas Dwight, jun., M.D. (Boston Society of Natural History.)

THE eleventh volume of the "Memoirs of the Boston Society of Natural History" contains a descriptive account, by Dr. Thomas Dwight, of the external characters and skeleton of a young razor-back whale, the skeleton of which is preserved in the Society's Museum. This animal was captured alive in October 1870, off Gloucester, Massachusetts, and its skeleton is the best preserved specimen of a large whale in any of the American museums. The animal was 48 ft. long, the flipper was 5 ft. 4 in., and the height of the dorsal fin, measured along the anterior edge, was 1 ft. 2 in. The baleen was of a very light straw colour anteriorly, whilst further back dark stripes appeared on it, until the hindmost blades were of a uniform dark slate colour. From the very careful description which Dr. Dwight has written of the skeleton, and from the figures given in illustration, there can be no question that the animal is a young example of the fin-whale, which Dr. Gray has named *Physalus antiquorum*, but which is more appropriately named *Balanoptera musculus*. In some remarks on the classification of the specimen, he refers to the tendency to variation in the forms of the bones exhibited in the skeletons of cetacea, undoubtedly belonging to the same species, and he agrees with those cetologists who have shown the danger of accepting mere individual variations in the forms of the bones of particular specimens as affording data for establishing specific or generic differences. W. T.

LETTERS TO THE EDITOR

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Bree on Darwinism

PERMIT me to state—though the statement is almost superfluous—that Mr. Wallace, in his review of Dr. Bree's work, gives with perfect correctness what I intended to express, and what I believe was expressed clearly, with respect to the probable position of man in the early part of his pedigree. As I have not seen Dr. Bree's recent work, and as his letter is unintelligible to me, I cannot even conjecture how he has so completely mistaken my meaning: but, perhaps, no one who has read Mr. Wallace's article, or who has read a work formerly published by Dr. Bree on the same subject as his recent one, will be surprised at any amount of misunderstanding on his part.

August 3

CHARLES DARWIN

Ants and Aphides

AMONG other misstatements in Dr. Bree's "Fallacies of Darwinism," so ably criticised by Mr. Wallace in NATURE of July 25, occurs the following:—"All the stories about aphides being treated as milch-cows are myths, the result of inaccurate observation" (p. 166). I can personally refute this statement, having on many occasions watched the process. Speaking of the attraction of male emperor moths by a captive female, Dr. Bree observes:—"All this was clearly, and without doubt, done by the sense of smell" (p. 209). I, in common with most other entomologists, should much value the evidence on which this very positive assertion rests; for the explanation of the attractive power of female insects has hitherto remained a mystery. R. MELDOLA

Atmospheric Effect

THE phenomenon mentioned by Prof. Tyndall as recently occurring at the Bel Alp is not infrequent at the coast. At

Folkestone in the month of June last, we saw several more or less striking instances. Some years since I witnessed, while driving, on a summer's evening, between Guildford and Godalming, an equally beautiful though different effect. The evening was stormy, and the sun, still some distance above the western horizon, threw its sheaf of rays downwards from behind a light cloud. In the eastern horizon was a dense, dark thunder-cloud, and upon this was seen a reflection of the opposite horizon, the shadows being absorbed by the dark background, while the intervening spaces or rays shone out with a brilliancy considerably exceeding that of those in the west. The whole of the circumstances were different from those described by Prof. Tyndall, there being, as far as I can recollect, no upward rays from the sun, and the rays seen on the cloud being neither convergent nor divergent, but merely parallel, and apparently a complete reflection of those which shot from the sun to the horizon. Their wonderful brightness, as contrasted with the rays of which they were the image, was, no doubt, the effect of contrast upon the almost blank screen on which they were seen. This latter, however, was lighted up to a certain extent by a sort of golden haze, in which the rays shone. The whole phenomenon was one of great beauty, and was witnessed by some friends of mine at Guildford at about the same time as I saw it from a point near to Godalming. J. RAND CAPRON

Guildford, Aug. 30

The Carbonic Acid in Sea-water

In the Deep-sea explorations undertaken of late years in England, the gases obtained from sea-water at various depths, and under different conditions, have been the subject of investigation. As coadjutor in the German expedition to the Baltic, I have been engaged in the analysis of the sea-water gases. There have occurred circumstances which I have thought it desirable to communicate to you with reference to your forthcoming future Deep-sea explorations.

I must premise that the expulsion of the sea-water gases was undertaken in a similar manner to that of the English expedition, the pans of water being boiled for a long time in vacuum, the expelled gases being collected and afterwards analysed. The result of these analyses pointed unmistakably to a hitherto unrecognised source of error, for the prevention of which a series of supplementary experiments was necessary. The principal results of these latter can be comprised under the following heads:—

1. The complete expulsion of the oxygen and nitrogen from sea-water presents no difficulty; it is accomplished as easily as with fresh water. The proportion of oxygen to nitrogen is not sensibly different in the first and last portions of the expelled gas.

2. The carbonic acid is only partially expelled by boiling the sea-water for hours in vacuum; the proportion of carbonic acid found in the expelled gas justifies no conclusion as to the amount in the water. It is, in the first place, dependent on the length of time during which the ebullition has been continued; the portions of the sea-water gas first driven off is almost entirely free from carbonic acid, the later portions are richer in it.

3. The complete expulsion of the carbonic acid from the sea-water is attained by its distillation in a current of air free from carbonic acid. Even under this operation, the carbonic acid is detached so slowly, that only after the evaporation of a considerable amount of water carbonate of lime begins to separate; the distillation must then be continued till, at the most, a fourth of the original quantity of water remains. The carbonic acid which is passed into baryta water can be conveniently estimated by volumetric analysis.

The fact that carbonic acid is present in large proportion in sea water, not as a dissolved gas in the same sense as oxygen or nitrogen, but in a peculiar condition of closer combination, must be of great importance, not only as respects the animal and vegetable life, but also the geological relations of the sea.

I am now proposing to myself the problem to ascertain to which constituent of sea-water is due its power of close combination with carbonic acid; and to what extent the amount of carbonic acid is proportional to its saltiness. Full details will be given in the Report of the German Baltic expedition. In the expedition to be sent from here to the North Sea, application of the experience hitherto obtained will be made to the estimation of carbonic acid.

Kiel, July 5

OSCAR JACOBSEN