

LETTERS TO THE EDITOR.

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The Rostrum of "Mesoplodon."

IN Mr. Beddard's recent and very interesting "Book of Whales," I observe that on p. 214 he gives as a character of *Mesoplodon* (one of the Ziphioid genera) "the thorough ossification of the mesethmoid," and in describing *Berardius* he states that "the mesethmoid plate is short, comparatively speaking; that is to say, compared with what we find in *Mesoplodon*." Here Mr. Beddard undoubtedly compares two structures which are entirely different. As I have shown and figured in the *P.Z.S.*, February 1893, the "mesorostral bone" is not the result of the ossification of the cartilaginous bar occupying in early life the spout of the animal's vomer. I have examined a number of these Cetaceans in the flesh, and have made sections of the dried beaks (a series of which I deposited in the British Museum) of individuals of ages from the quite young calves to that of the very adult male, and I have shown in the paper referred to that the first appearance of the mesorostral bone is due to an increase in the walls of the premaxillaries by which the sides of the vomerine-spout are pressed towards each other, and, proliferation being apparently induced, both the vomer and the premaxillaries increase in size, and very variously in form, according to pressure unequally acting on them, till the cartilaginous bar is entirely absorbed or, at all events, disappears. The increase—from some pathological cause, probably—in the premaxillaries is apparently the main cause of the solidification of the beak.

Now what happens in *Berardius* is of an entirely different character. In *B. arnuxii* an ossified bar lies, often to a length of twelve inches, in the vomerine trough; but this is unmistakably an ossification of the anterior part of the mesethmoid cartilage. It takes place in a very different way, also, from the ossification in *Mesoplodon*. It is an ossification of the upper and outer layers of the mesethmoid cartilage; it is of an open and spongy texture; it never becomes ivory-fied, so that in the dried skull it is a mere prolongation of the mesethmoid—hardly seen in *Mesoplodon*—and merely covers in to some extent the gape of the vomerine trough, which underneath is quite empty, with its sides and bottom entirely unaffected. Indeed, the mesethmoid plate, with its extension, is in *Berardius* much longer than in *Mesoplodon*. What takes place in the former genus is precisely what occurs so frequently in *Clymenia*.

In a note on page 280, Mr. Beddard writes, "the Scottish vernacular for this creature [Globocephalus] 'Ca'ing Whale' means Driving Whale." The proper orthography of "ca'ing" should be "ca' in" (two words), which being interpreted out of, to the Southerner, its foreign tongue, means "the drive in or driven in-whale." Ca'a is entirely erroneous. Ca' (in Orkney, Kaa), as it should be printed, stands for "call." In the common order to the herd on a Scottish farm of "Ca' in the Kye" (meaning "Drive in the Cows") the expression arises, doubtless, from the custom of the past—which is the custom to-day, as I have seen in New Guinea in regard to their pigs, and in Sokotra last year in regard to the flocks and herds—of actually by voice "calling in" the cattle. The phrase has now become the common one to "drive in," by some one going for them. The method of capturing the *Globocephalus* in the north of Scotland is for the fishers, when they see a school, to hurry out in their boats, surround and drive on to the beach the Blackfish, which is, therefore, always spoken of there as the "Ca' in Whale," i.e. the whale they can drive in, in contradistinction to a species which they have to harpoon or chase in the open.

HENRY O. FORBES.

The Museums, Liverpool, March 2.

Vector Diagrams.

In a paragraph on the last number of *Terrestrial Magnetism*, in NATURE of March 1, p. 421, I notice the following sentence: "Dr. Lüdeling investigates graphically the phenomenon of the diurnal variation of the earth's magnetism for eleven stations with the aid of von Bezold's vector diagrams." These diagrams are curves in which the radius vector represents in magnitude

and direction the resultant of the disturbing forces to which we may attribute the diurnal variation of the horizontal component of the earth's magnetic force at any particular station.

So far as I know, the earliest use of these curves by von Bezold was in a paper in the *Berlin Sitzungsberichte* of 1897. This may have been their first appearance in Germany, and if so, their association with the well-known name of von Bezold in that country need hardly occasion surprise. In England, however, their use dates from at least 1863, when Airy employed them in discussing the diurnal variation at Greenwich in different years and at different seasons of the year (see *Phil. Trans.* for 1863). Airy used them again in the *Phil. Trans.* for 1885, and they also appear on p. 186 and on Plate iii. of Lloyd's "Treatise on Magnetism, General and Terrestrial." More recently I employed them myself in discussing the diurnal variation of the magnetic elements at Kew Observatory (*B. A. Report* for 1895, pp. 209-227).

The only apparent difference between Airy and von Bezold is, that the former made use of the recorded variations of horizontal force and declination, drawing his magnetic meridian towards the top of the page, whereas the latter made use of the northerly and easterly (or westerly) components of the force, and drew his astronomical meridian towards the top of the page. The curves given by Airy and by myself show the positions of both the magnetic and astronomical meridians, and if it is preferred that the astronomical meridian should point to the top of the page, all that is necessary is a bodily rotation of the curves through an angle equal to the declination.

When comparing results at different stations, or at the same station at different epochs, there may be an advantage—as, in fact, I pointed out myself (*B. A. Report, loc. cit.* pp. 218, 219)—in taking the astronomical meridian as the line of departure; but as yet this is largely problematical. The interesting tables and diagrams for polar stations given by Lüdeling—as Lüdeling, I think, has himself noticed—seem to indicate, on the whole, less symmetry about the astronomical than about the magnetic meridian. If so, it is open to doubt whether Airy's original practice might not, after all, have been the better fitted to bring out points of resemblance.

C. CHREE.

Richmond, March 8.

Similar Geological Structures in South Tyrol and the Isle of Man.

It may be of interest to Alpine geologists to note that the general results now obtained by Mr. Lamplugh in the Isle of Man are, in respect of the origin of the "Crush-Conglomerates" and the causes and effects of differential movements between subjacent series of rock, practically the same as the results previously obtained and described by me in maps and sections of the Enneberg area in South Tyrol (*Quart. Journ. Geol. Soc.*, cf. M. M. Ogilvie Gordon, 1899, and G. W. Lamplugh, 1900). In both cases the geologist deals with resultant local effects combining the pressure-components of at least two epochs of disturbance. In both cases the geologist is presented with strongly-marked lithological contrasts in the original succession, and, as a consequence, with highly complex superinduced structures due to differential movements between subjacent beds. This remarkable parallelism between the essential geological structures in two neighbourhoods so remote from one another, and in belts of strata belonging to utterly distinct geological epochs, is well worthy of comment and consideration by our present school of geologists.

Aberdeen, March 16.

MARIA M. GORDON.

Tides along the Antarctic Continent.

IN Prof. Drygalski's statements (NATURE, February 1) of the work mapped out for the proposed German Antarctic Expedition, no mention is made of obtaining tidal observations along the Antarctic Continent. In ascertaining the *verae causae* of tides which occur along many shores, even along the eastern coast of the United States, I believe this region to be of great importance.

Hourly readings of the height of the surface of the sea above an arbitrary datum for even so short a period as twenty-four hours at each station occupied for the purpose, would be of value.

It seems to me especially desirable to have the following questions answered:—

(1) Along the Antarctic lands from long. 20° W. to about 40° E., is the (Greenwich) co tidal hour vi.?