only, as I expressly stated, in so far as it coincides with Prof. Dana's theory. Granting the probable validity of Prof. Le Conte's first objection, that the coefficient of contraction is probably not the same in parts of the earth differing in composition, it simply shows that his theory is not so different from Prof. Dana's as I had supposed; although he still locates the Continents where Prof. Dana locates the ocean-floors, and demands a globe continuously rigid from centre to circumference, which Professor Dana does not.

Prof. Le Conte says that, unless we assume that the earth is preternaturally homogeneous, the very slight deformation exhibited by its surface would result from cooling. This appears to be a sufficient answer to my argument, so far as it applies to Prof. Le Conte's own theory, since he says the inequalities of the surface are due to unequal contraction of the radii through their entire length. But Prof. Le Conte's criticism does not meet my argument in its application to Prof. Dana's theory; for Prof. Dana says the oceanic hollows are due to the unequal contraction, not of 4000 miles of earth-matter, but of only about forty miles. His theory supposes that the earth has a thin solid crust, separated by a mobile layer from an immense solid nucleus, and that the inequalities of the surface are due to unequal contraction of this thin external crust alone. Hence Prof. Le Conte's illustration should be modified. Instead of taking a ball of molten iron or rock as a model of the whole earth, suppose a layer of molten iron or rock to represent the earth's crust. Let this layer be forty inches thick; then Prof. Dana says that when the whole is solid the layer will be three inches thicker in some parts than in others, in consequence of unequal contraction. Now I claim that this unequal conductivity and contraction, amounting to about eight per cent., requires, in the case of the earth, an unproved and improbable difference in composition.

If Prof. Le Conte will consult the last published expression of Prof. Dana's views (Amer. Journ. of Science, 3, vi. p. 168), he will find that Prof. Dana does hold that the steep slopes of the oceanic depressions are due to the supposed original difference in composition and conductivity of the continental and oceanic areas. I have not ascribed this view to Prof. Le Conte, but he seems to have both misread and misquoted me here.

Finally, although I have taken account only of the contraction due to solidification, yet I think this is fair, because I have made the extremely favourable supposition for Prof. Dana's theory that the oceanic areas remained liquid until the continents became entirely solid.

Boston Society of Natural History,
Boston, U.S.A.

W. O. Crosby.

THE MAMMOTH IN THE FOREST-BED.

Sir,—By a singular coincidence, the day after I received a copy of my paper on the occurrence of the Mammoth in the Forest-bed, a heavy storm laid bare that bed at Overstrand and Sidestrand. I took the first opportunity to go to Cromer, and Mr. Alfred Savin

placed in my hands an upper tooth, which I unquestionably pronounced to bear a stronger resemblance to the *E. primigenius*, than any I had before met with, and I went with him to the spot whence the person, who sold it to Mr. Savin, took it. It was the upper part of the Forest-bed series, and the matrix upon the tooth corresponded with it.

It was a fine specimen with about 18 plates; although it was undoubtedly of *E. primigenius* form, still the width of the plates reminded me of the pre-existent Leptodon type from which it appears to be derived.

Yesterday Mr. Savin favoured me with several photos of the small teeth; some of which are from the same parts of the Forest-bed, others from a lower part. All these Mr. Savin had been advised to label *E. primigenius*. They are remarkably crimped. Mr. Fitch has kindly given me an opportunity to compare them with some specimens in his splendid collection obtained from the railway cutting at Ipswich. These are also milk teeth, but no less remarkable for the entire absence of crimping.

Surely these, although labelled and considered to be teeth of the Mammoth, must be of a remote and intermediate type. What I contend for is the existence of such intermediate links between the forms recognized by Dr. Falconer as decided species.

I am not surprised to find them pass from one into the other, as exemplified by the recent discovery of this fine molar, which I take the first occasion to announce through your valuable Journal.

JOHN GUNN.

THE PIKRITE BOULDERS IN ANGLESEA.

SIR,—I am sorry the famous boulder of this mineral has recently disappeared from its place at Pen-y-carnisiog in Anglesea. The natives tell me it has all gone to London. I have known this fine sparkling boulder for several years, and never passed the spot without bounding over the wall to give it a friendly tap with my hammer, or have a smoke leaning against its polished sides; but my knowledge never got further than to call it a strong hornblendic "tumbler," *i.e.* Cymraeg for an "erratic"—of which there are other examples yet unremoved.

For the last ten years my holidays have been spent at a small place on the S.W. coast of Anglesea. The time has been pleasantly utilized with the aid of my wife in exploring and dredging for molluscs (of which we have over 200 good species), and in mapping down the geology of a broken coast, of which I have nearly measured every yard of 12 miles of the rocks. The complete section and map is full of details, an explanation of which is almost completed; but the point which will have most interest to some will lie in the fact that the Map will show more than one locality where the mineral Pikrite is bedded *in situ*.

ROYAL MUSEUM, PEEL PARK, MANCHESTER.

CAPT. JOHN PLANT, F.G.S.