

and his indefatigable and acute observation of volcanic phenomena, over a period of many years, entitle his opinions to the most marked respect, and his excellent works on the subject have always excited my admiration. His views, to which he recalls my attention, had escaped me at the time of writing my article in the November number; but I made no reference to any authors or any published views, because I simply wished to put forward what I only regarded as a speculative idea, whether the crystallization of vast rocks could give rise, by their expansion or contraction, to the rupture of rock-strata not necessarily in immediate contiguity with the crystalline mass, but held in a state of tension by the difference in volume produced by crystallization. Mr. Scrope has misunderstood me altogether in supposing I meant a *sudden crystallization*: what I meant was, that the "snap" of the rock-strata, held in tension by the increased or diminished volume of the crystalline mass, was *sudden*. The crystallization of rock-masses I believe to be very slow, perhaps often occupying enormous periods of time to effect over great masses. Still, however slow the alteration of volume takes place, a tensile strain must be continuously accumulating until it exceeds the adhesive force of the strata, and then a "snap" occurs. I also referred in my remarks only to such earthquakes as occur without visible or evident association with active or eruptive volcanic phenomena; such, for example, as the late English earthquake, or those so constantly taking place in the neighbourhood of Comrie, in Scotland. It seems to me that there are two classes of earthquakes, one connected with volcanic phenomena, as stated by Mr. Scrope, the other, simply "snaps and jars," without any connection with volcanic phenomena at all, and produced by the crystallization, the drying and contracting, or increase of volume by heat or other suchlike natural causes which are not dependent on subterranean volcanic materials, such as molten lava or the supposed incandescent internal fluid core of our earth. I put forth the idea of crystallization as one of the possible causes of what I supposed to be non-volcanic earthquakes, with some timidity, knowing and appreciating the labours of Mr. Scrope and Mr. Mallet, and the more so that I had had little time to devote to the due consideration even of my own idea. I thought it one, however, worth promulgating, and I am gratified to read the terms in which Mr. Scrope speaks of it. —ED. GEOL.]

Mammalian Remains from Grays Thurrock.

SIR,—With a view to the settlement of some undecided points connected with the "mammalian fauna" of the pre-glacial deposit, and of the post-glacial high and low level gravels, etc., any geologists or palæontologists possessing collections from Grays Thurrock, or any of the other fossiliferous localities in the valley of the Thames, or corresponding river-valleys in the south-east of England, will greatly oblige the undersigned, by communicating to him whether they possess good specimens, containing teeth, of bears, or of hyænas; and if so, what amount of evidence the specimens present.

H. FALCONER.

21, Park Crescent, Portland Place, Nov. 12, 1863.

Mammoth Remains at Leicester.

DEAR SIR,—As it is of importance in these "drift-searching" days that all remains found of mammals in the drift should be made known to your readers, I have much pleasure in communicating to you that information was this morning brought me of a horn or tusk, of very large dimensions, had been laid open in a cutting for drainage in the valley of the Soar, in the outskirts of Leicester, and near the village of Belgrave. I at once proceeded to the President of our Philosophical Society, and obtained his permission to secure it for our town museum; and also to inform one of our leading geologists, James Plant, Esq., of the fact. We drove to the

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spot, and found our anticipations more than realized; for it turned out to be the tusk of a "great Mammoth," such as is very rarely found in this country.

The specimen is in a fine state of preservation, and measures 2 feet in circumference, and 9 feet in length. It lay at the bottom of a very old drift-gravel, and on the true bed of the Keuper marl, at a depth of 11 feet from the surface.

It is very interesting to find Mammoth bones on the virgin-surface of an old formation, as it establishes to my mind, beyond a doubt, the existence of the Mammoth before the "drift."

Some have doubted whether the Mammoth really was an inhabitant of this country; but this has been long set at rest; and here is undoubted evidence of the fact of its local existence. The specimen is very little water-worn.

I do not know that any further remarks are necessary. The specimen in the course of this day will be lodged in the Leicester museum.

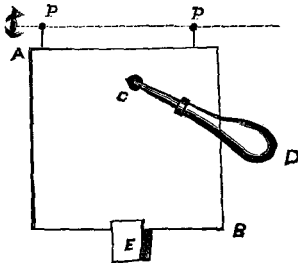
I am, dear Sir, yours very truly,

FRANCIS DRAKE, F.G.S.

30, Market St., Leicester, 27th Oct., 1863.

Geological Section Making.

SIR,—Perhaps you may think it worth while to mention in your journal a very simple contrivance which I devised for the purpose of laying down the contour of a piece of ground, of which I desired to make a geological section. From its extreme simplicity, combined with very tolerable efficiency, I think it would often be found useful where mathematical exactness is not required.



AB is a square piece of board, —accuracy of form is immaterial. It may be of any size, say six inches square. *E* is a piece of lead, bent so as to embrace the lower edge, and capable of being made to slide tightly along it. *D* is an awl passing loosely through a hole at *C*. *PP* are two common pins, stuck into the upper edge of the board.

To adjust this instrument, it is only necessary to slide the weight *E* along the edge of the board, until the heads of the two pins rest in a horizontal line, when it is suspended by the handle *D*. This may be done either by fixing a mark at the level of the eye, and looking at it from a little distance along the line *PP*, taking care that the feet are on the same level as when fixing the mark, which may be ensured by standing on the shore of a pond or the sea; or else the adjustment may be effected by sliding the weight until the *same* point of a distant object is seen along the line *PP*, when the two pins are interchanged by bringing first one and then the other next the eye.

The proper position of the weight having been determined, the instrument is ready for use.

Suppose the contour of a hill desired. Take your stand at the lowest point at which the section is required to commence; hold one of the pin-