In No. 2 of the glass copies from the Ottumwa photographs, 1869, the moon is also apparently quite circular; but in No. 4, where the bright depths of the chromosphere are just appearing, the polar diameter is distinctly the longest. I have been led to conclude that the ellipticity is caused by an unequal eating over or irradiation at the polar and equatorial portions of the limb, and that in this lies proof that at the sun's equatorial regions the brighter layers of the chromosphere extend to a greater height than near the poles. We know from other sources that the corona generally, and probably also its lower portions, were not so bright in 1870 as in 1869 and 1871; hence the eating over between the prominences has been comparatively slight, and no detectable difference has been caused between the polar and equatorial diameters. ——— A. COWPER RANYARD

The British Museum

IT is strange that such a statement as that advanced by Mr. W. Stanley Jevons in NATURE, Nov. 13, has so long remained unchallenged, viz. "that the British Museum exists not so much for the momentary amusement of gaping crowds of country people, who do not understand a single object on which they gaze, as for the promotion of scientific discovery, and the advancement of literary and historical inquiry." No one will dispute the truth of these statements, but substitute the word "instruction" for "momentary amusement," and I very much doubt if his views would meet with public approval. I have always looked upon the British Museum as the National Museum, and *pre-eminently* the Museum of the people, and, as such, the arrangement and labelling of the specimens should be of the most simple and instructive nature: nor is such an object opposed to, but perfectly coincident with, the highest interests of science. No wonder the Museum is filled with "gaping crowds" when nothing is done to instruct them as to the nature of objects of which Mr. Stanley Jevons himself admits they are ignorant, nor to provide them with a suitable and educational guide-book, without which they are as sheep without a shepherd When the Trustees of this Museum can spare time, they may, perhaps, be able to direct attention to the fuller development of its scientific and educational functions; as regards the former, by the establishment of one exclusively British Department; and, as regards the latter, by carrying out the very obvious suggestions which I have advanced. The view that science, or rather scientific men, should have a monopoly of the benefits to be derived from this Institution is astoundingly selfish and narrow-minded. If such are the views of the Trustees, the British Museum had better be closed to the public. S. G. P.

Moraines

I HAVE recently been visiting some of those spots which, according to Prof. Ramsay and other geologists, are marked by moraines of the ancient glaciers of North Wales, and several of which are supposed to form the retaining walls of lakes or tarns: and a question has arisen in my mind to which neither my own consideration nor any of the few books here at my command has afforded any answer.

A glacier which has retreated from its terminal moraine, is always the source of a stream of water, and this stream always cuts through the terminal moraine, and makes in it a gap often wide, and always reaching down to the level of the original soil. A terminal moraine from which a glacier has retreated is the rim of a saucer with a cleft in it, extending to the bottom of the saucer. It consequently cannot and does not act as a retaining wall, and the water from the glacier does not form a lake, but flows out as a stream. No better illustration of this fact occurs to me than the Rhone glacier, with its long series of terminal moraines, all intersected and cut through to the ground by the infant Rhone. How then can a terminal moraine ever form a lake? But if a terminal moraine alone cannot form a lake, a terminal moraine with a stopper put into its hole might. But how is the stopper to get there? Why should *débris* or stones or any other stopper stay in the one place in the whole line where there is no resistance?

Where the basin of the lake is supposed to be constituted by a rock basin and a moraine on its rim, what I have said has, of course, no application to the rock basin, but seems to me to apply to show that the moraine cannot constitute any part of the retaining barrier.

And again, where the retaining barrier is supposed to be constituted by a marine terminal moraine, *i.e.* by a moraine deposited under the sea, the observations I have made seem not to apply.

My questions apply to ordinary terrestrial terminal moraines. They are so simple and go so to the root of the whole notion that such moraines can form lakes that I presume they have been answered long ago by geologists. Can any of your readers tell me where such answers are given or what they ought to be?

Bryn Gwyn, Penmaenmawr, Oct. 13 EDW. FRY

The Elevation of Mountains and the Internal Condition of the Earth

I HAVE just read in NATURE, vol. ix. p. 62, Captain Hutton's letter to the Rev. Osmond Fisher on the "Elevation of Mountains and Volcanic Theories." I was also indebted some time since to the courtesy of Captain Hutton for a copy of his lecture on the Formation of Mountains, delivered at Wellington, New Zealand, November, 1872. Without entering at present into a discussion upon the particular theory which finds favour with him, I may be permitted to call attention to the fact that Sir William Thomson's views as to the rigidity of the earth have been distinctly called in question in a former number of this journal, which has probably not reached Captain Hutton. I refer to my communication entitled "The Rigidity of the Earth," printed in NATURE, vol. vii. p. 288. Captain Hutton expresses his belief that the theory of internal rigidity has probably a weak point somewhere. I venture to think that its weak points are so many as to make it a theory too brittle to form a support to any geological superstructure.

Dublin, November 28. H. HENNESSY

METEOROLOGIC SECTIONS OF THE ATMOSPHERE

THE primary object of meteorology is to record the pressure, the temperature, the moisture, the electricity, and the movements of the atmosphere. It is desirable, however, that observations on these subjects should be combined with the elements of time and distance. At the general meeting of the Scottish Meteorological Society on June 26, 1867, I proposed the method, since generally adopted, of reducing the intensity of storms to a numerical value by the calculation of barometric-gradients, or in other words by dividing the difference of reading of any two barometers by the distances between the stations where such barometers are placed, thus introducing a nomenclature of universal application, by which the movements of any aërial current, and particularly the wind force of storms, may in every part of the world be reduced to one standard of comparison; and the calculation of thermometric, hygrometric, and electric gradients was subsequently proposed. Since then I suggested to the same society the extension of this system by the establishment of a series of barometers placed at short distances from each other in one or more than one direction in azimuth, so as to give horizontal atmospheric sections for pressure. By means of such lines of section the maximum gradient during storms might, from the nearness of the stations to each other, be ascertained, and thus the phenomena of local storms and other local atmospheric disturbances investigated with some hope of success; and since then a horizontal section extending landwards from the sea-shore has been proposed for temperature and moisture, chiefly with the view of determining the extension inland of the influence of the sea on climate.

It would be important were the system of meteorological sections extended to the vertical as well as the horizontal plane. If a string of stations were placed at short horizontal distances from each other and extending from the bottom to the top of a high hill or mountain, the section thus obtained would show the relative distribution at different times, of pressure, temperature, humidity, &c., in the vertical plane. In Scotland, the existing station of Drumlanrig is 191 feet, and that at Wanlockhead 1,334 feet above the sea, so that the difference in elevation is 1,143 feet. The horizontal distance between them is 9 miles, and in all probability the necessary number of intermediate stations could be established. In Hong Kong the town of Victoria is 1,666 feet below that of Blockhouse Victoria Peak, while in Switzerland