

GRANITE.

SIR.—I can only express amazement that such a paper as that of Mr. T. R. Struthers on Granite (*GEOL. MAG.* 1892, p. 561–4) should have been written in the year of grace 1892.

Mr. Struthers begins by attributing to geologists the absurd theory that the supposed granitic foundation of the Earth's crust was formed after the overlying crust itself. A perusal of pages 86 to 88 of Rosenbasch's paper "*Zur Auffassung des Grundgebirges*"¹ would have shown the groundless nature of this statement.

Then follows a delicious example of a *non sequitur* in the observation "that erupted rocks, whether volcanic or trappean,² have apparently been derived from granite, for in common with them it consists mainly of silica, alumina, potash, soda, lime, magnesia, and iron." Why granite, to the exclusion of syenite, diorite, gabbro, peridotite, etc., is to arrogate to itself the honour of being the mother of all erupted rocks is not even supposed to require explanation.

Then we have a quotation of a most unfortunate remark of Beete Jukes (no page or reference given; I find it in the 2nd edition of his *Manual of Geology*, 1862, omitted apparently in the 3rd edition, 1872), from which Mr. Struthers evidently concludes that any lava stream, of no matter what chemical composition, could be traced within the earth to granite. Let the petrologist imagine tracing a limburgite lava stream to a granite magma.

Mr. Struthers states that "the hydrothermal conditions under which granite was formed . . . were peculiar to a particular period of the world's history, when a sea of high temperature overspread its entire surface before any dry land had appeared." Anything more contrary to known facts than this statement can hardly be imagined. The Dartmoor granite and the Brocken granite alter rocks of the Carboniferous period. Does Mr. Struthers suppose that no dry land had appeared at that period or that the fish of those days swam about in boiling water?

He has no hesitation in saying (apparently only from the examination of Lyell's figure (*Elements*, 1874, p. 552) that the granite of Sharp Tor, Cornwall "is a fine example of bedded granite originally discharged in successive submarine sheets."

Unfortunately Lyell does not state the scale of his drawing, otherwise Mr. Struthers would probably see the untenable nature of his interpretation of the well known mural weathering of granite. An examination of the rock of the apparent pile in question would probably show under the microscope complete continuity in the unweathered portions between the seemingly separate lenticles. If Mr. Struthers's interpretation of mural weathering were correct the lenticles should be of immense size, whereas every one practically acquainted with the subject knows that they thin out or are discontinuous usually in a distance of a few feet. BERNARD HOBSON.

OWENS COLLEGE, MANCHESTER, Dec. 19th, 1892.

¹ Neues Jahrbuch für Mineral, 1889, Bd. ii.

² Mr. Struthers still classifies rocks into, among other groups, "trappean" and actually calls syenite a trappean rock.