its traditions, but it has been greatly favoured by the advance of geology, and is thereby acquiring the claims of an exact and recognized department of science; whatever its development, the mode of reasoning adopted must ere long be acted upon by that worked out in geology.

CORRESPONDENCE.

BOULDER CLAY (?) IN DEVONSHIRE.

SIR,—Rapid traverses and hasty observations have been rather severely criticized in a recent number of your MAGAZINE; but it is possible that even in a hurried visit one may make some useful suggestion. During a recent erratic traverse I saw what I took to be Boulder Drift in Devonshire. Coming from South Wales to Tiverton by way of Worcestershire, I was much struck with the similarity of some of the drift deposits in that part of Devonshire to those boulder beds which obscure a great part of the country between Cardiff and Bridgend, where I was engaged for some time, and often with much "scientific use of the imagination," in completing the re-survey of the southern part of Glamorganshire, which was chiefly done by Mr. Bristow. The deposits in both areas are made up of what may be local materials, at any rate they have not come from far, being large boulders of Carboniferous sandstones and grits, quartz, and Old Red Sandstone. Those in South Wales are clearly of glacial origin. May we not, therefore, look upon these deposits in Devonshire which possess an identity in character as being of similar origin? These are, of course, the ordinary river gravels as well in these parts; but the position of some of the deposits in many places near Tiverton, which were pointed out to me by Mr. Ussher, forbids any notion of their being due to the action of rain and rivers: they seem to have been deposited after the land obtained its present general features, and being irrespective of any level, occupying the highest ground, and sometimes coating the hills, as they are coated in South Wales, we can see no traces of marine action in their formation. Some of the gravels and boulder beds near Tiverton are no doubt very largely made up of old Triassic conglomerates.

Although this is only a suggestion, it may be interesting to bring it forward, as the evidence of Glacial deposits in the south-west of England has received some little attention. Some years ago Mr. Ormerod ascribed a glacial origin to some "old gravels" in the valley of the Teign. (GEOL. MAG. Vol. VI., 1869, p. 40.) Mr. Mackintosh had previously observed what he thought might be glacial scratches on some exposures of Mountain Limestone "near the summit of the hill to the north of Axbridge," Somerset (GEOL. MAG. Vol. III. 1866, p. 574); and very recently Mr. Perceval has given a note on a Boulder found near Old Cleeve, West Somerset. (GEOL. MAG. April, 1872, p. 177). Mr. Moore, too, sees evidences of glaciation around Bath (Bath Nat. Hist. and Antiq. Field Club, March 10, 1869).

QUEEN CAMEL, 23*rd September*, 1872. HORACE B. WOODWARD.

P.S.—Mr. Bristow tells me that he and Professor Ramsay found Coal-measure sandstones with glacial striæ in the Boulder-clay near Cardiff, and that having seen the drift on Exeter Hill near Tiverton, he remarked to Mr. Ussher, who was engaged in mapping the district, that striæ should be looked for, as polished gravel such as that was very suggestive of glacial action. H. B. W.

MR. HOPKINSON'S NEW SPECIES OF GRAPTOLITES FROM THE SOUTH OF SCOTLAND.

SIR,—While gratefully acknowledging the value of Mr. Hopkinson's researches among the graptolites of the south of Scotland, I beg to enter my protest against part of his paper in the November number of the MAGAZINE.

At p. 501, Vol. IX., it is stated that "The Lanarkshire graptolitic shale is considered by Prof. Geikie to form 'an upper part of the Moffat group,' but while decisive stratigraphical evidence is wanting, from the evidence afforded by the fossils it seems more probable that but one band of graptolitic shale runs through the Llandeilo rocks of the south of Scotland, there being in this band several distinct zones, each marked by a different assemblage of fossils, but with many species in common."

During the progress of the Geological Survey in the Leadhills district, "decisive stratigraphical evidence" was obtained that the Leadhills graptolitic shale group occupies a higher horizon than the Moffat group. This is indicated in the Explanation of Sheet 15 of the Geological Survey Map.

From the localities given in Mr. Hopkinson's paper, it appears that of the ten new species of graptolites described by him, two are peculiar to the Moffat group, six peculiar to the Leadhills group, and two common to both. There is not, here at least, much "evidence afforded by the fossils" of the identity of the two groups. What I object to on Mr. Hopkinson's part is his describing the whole ten new species as "graptolites from the Moffat group," thereby mixing up fossils which it is of the utmost importance to keep separate. I am confident that neither Professor Geikie, nor either of my colleagues, Messrs. Horne and Skae, who have since the survey of the Leadhills group carried on the work into the Moffat group, would for a moment entertain the idea of their identity.

Even where there really is an absence of stratigraphical evidence, it seems to me that the best course is not to slump together all the fossils collected within a certain area and call them a "group," but to distinguish the fossiliferous rocks bed by bed, if need be.

Of the localities in question a glance at Sheet 15 of the Geological Survey Map will show the following to be in the Leadhills group, viz., Wanlock Water, Kirk Gill, Lowen Dod, and Laggen Gill. Lochan Burn, Frenchland Burn, Garple Linn, and Moniave (?) probably lie within the limits of the Moffat group. I trust, therefore, that pending the issue of the Geological Survey Memoir on the holew