

tised eye green stony matter replacing tiers of the many-segmented 'Sarcodæ,' together with delicate greenish-white threads for 'pseudopodial filaments,' and for 'stolons,' of the different sizes and in the different positions peculiar to the structure of *Foraminifera*, can readily be detected. The loose morsels also, fallen in the water, are (as Dr. Carpenter showed me) especially instructive, if carefully dried and mounted.—T. R. J.

GEOLOGICAL 'NOTES AND QUERIES.'

*To the Editor.*

MY DEAR SIR,—In the early part of the past year, I ventured to suggest to the Council of that very useful body, the 'Geologists' Association,' that an extension of the aid they were giving to geological observers would result from the periodical publication, monthly or quarterly, of a 'Notes and Queries.' To illustrate my meaning practically, I took the further liberty of contributing the first number, having sundry enquiries myself to make, needing, like others, co-operative help. This little *olla podrida* of mine the Association published, with an official foot-note of approval and explanation. But though still convinced of the value of such means of distributing and acquiring help within the limits of the 'Association,' I am so greatly of opinion that more extended and equally valuable aid may result from embodying the scheme with that of the GEOLOGICAL MAGAZINE, that I beg for some small space wherein to remark upon it. Although a desultory system of notes and enquiries did obtain during the existence of the respected predecessor of the GEOLOGICAL MAGAZINE, the scheme upon which it was cast differed somewhat from the arrangement I would suggest.

My remarks upon the plan need be but short. The arrangement in that valuable friend of Literary men, 'Notes and Queries,' is the one which I should like to see applied to the help of Geological students: everyone being familiar with this model, I need not describe it. My remarks will be rather directed towards indicating subjects which may both lead to the help of individuals, and at the same time advance the progress of the science.

The very suggestive article by Professor Rupert Jones which inaugurated the New Year, and to which, unknowingly, I added a kind of postscriptal paper, will save me mentioning our wants as regards the palæontological, physical, and petrological studies which belong to the older half of the Palæozoic epoch; and save my bringing forward, as a witness of the usefulness of my plan, any more puzzled student of rocks older than the 'Mid-Silurian' student. At this stage in the chronicle of past time begin my inquiries.

1. Will some one kindly ask what are now the boundaries of the 'Middle Silurian,' and what are its frontier relationships with rocks above and rocks below? 2. Also whether the May Hill Sandstone, or any 'Llandovery' rock, is being worked now anywhere in Britain? While making these queries, I call the attention of the Malvern geologists, and other observers situated thereabouts, to the *extraordinary* abundance of *Tentaculites* in the Upper Llandovery Sand-

stone of Ankerdine Hill (south flank), near Bromyard (Herefordshire). A rock literally composed of casts of the sheaths of *Tentaculites* certainly exhibits a curious zoological condition of a Silurian shore.

3. Is the rock of the 'Church-hill quarry' at Leintwardine of 'Aymestry Limestone' age, or 'Lower Ludlow'? I am aware that, until lately, its position as a 'Lower Ludlow' rock was unimpugned; but the discovery of *Pteraspis Ludensis*, the earliest (at present) known Fish, renders it desirable that the question of relative age should be cleared up. 4. Another enquiry, prompted by the fossil contents of a rock exposed near to Leintwardine, I wish also to make, both for my own information, and also as suggestive of research. When are the 'branched Graptolites' discovered some few years ago by Mr. Alfred Marston, in Lower (?) Ludlow rock near Burington, to be figured, and collated with the species described by Professor James Hall (who certainly is the first geologist who has pieced the fragmentary relics of these curious animals together, and presented us with the entire form) in 'Decade No. 2' of the Geological Survey of Canada? 5. The Ludlow district is so rich in Upper Silurian fossils, that I cannot pass it over, even in thought, without calling attention to some new, large-sized, and certainly undescribed *Pteropoda* from Upper and Lower Ludlow rocks, which are now in the cabinets of my friend Mr. Lightbody of that town. Mr. Henry Woodward has behaved like a father to the Pterygotus family, and I trust he may be inclined to place the Silurian Pteropods in an equal position of comfort and esteem.

6. While remarking upon rocks which lie next above the 'Wenlock Series,' I would suggest that it would be very desirable to tabulate the genera and species of Corals which range upwards from the limestones of that great Silurian zone into the more arenaceous rocks of the 'Lower Ludlow.' Certainly they are but few, and these probably merely the species best calculated, by their life-characters, to live in a changed habitat; but as such study may be taken as one of the many hundred which palæo-zoological science evolves from our ancient rock-material, it cannot be overlooked. 7. Before leaving Silurian palæontology, I should like to express a hope that some record may yet be taken of the most wonderful—for so it was—richness of the comparatively thin band of Lower Wenlock Shales pierced during the making of the tunnel through the Malvern Hills. As yet I have seen no paper describing the fossils, several of which are quite new to Britain, discovered during the progress of the work; and, although the major part of the treasures thus secured are safe in the cabinets of my friend Dr. Grindrod, of Great Malvern, I think some record of their discovery should be drawn up so as to introduce them to their kindred, immortalised in the pages of 'Siluria.'

8. 'The Old Red Sandstone' is a field of enquiry which would easily furnish, of itself, a volume of 'Notes and Queries.' The singularly diverse conditions under which rocks, probably of contemporaneous age, were deposited, and the, as yet, remarkable discrepancies between the palæontological values of rocks lying within its limits, both relatively to each other and with reference to their mineral character,

endow it at once with a special interest. I should like to hear enquiries as to how it happens that, as yet, no remains of any Scotch 'Old Red' Fish have been met with in English 'Old Red' rocks, as exposed in Herefordshire and the Border-counties generally. Also, if Mr. Pengelly's discovery in the Devonshire rocks of Fish-remains allied to the forms met with in the rocks of the Scottish Highlands (Middle Old Red) still stands alone.

9. As regards the uppermost zone of the 'Old Red,'—that known as the 'Yellow Sandstone,' a typical exposure of which was described by Prof. Morris and myself in the *Quart. Jour. Geol. Soc.*, vol. xviii. p. 94, as occurring in Shropshire,—I wish to call the attention of Geologists living in South Wales to its occurrence in the district between Haverfordwest and Tenby; and to the probability of it, as there exposed, yielding good fossils. Specimens of *Pterichthys macrocephalus*, Eg., should be keenly looked for.

10. Questions which arise out of the study of the Carboniferous rocks, and Notes, which I feel sure may be easily gathered, of new discoveries, and fittingly enshrined in the GEOLOGICAL MAGAZINE, are so many, that I will only indicate two matters which, if looked into, and the results preserved, will be of use in the advancement of knowledge. One is, that in the brown shaly coals of North Staffordshire, Shropshire, and West Worcestershire, Reptilian bones occur far more numerous than we have imagined. I have myself, years ago, seen many specimens; but, unluckily, I regarded them as belonging to some Holoptychian Fish, and took no special heed of them. 11. The other subject is connected with one of the mysteries of the Carboniferous epoch; the botanical position of the *Sigillaria* with *Stigmaria* as its creeping root. When possible, it appears to be exceedingly desirable that a careful drawing should be taken of any large individual tree found *in situ*, before the arrangement and relationship of the root with the trunk are disturbed; as there appears some probability that the huge plant was more nearly allied to the Mosses than we have hitherto considered. Prof. Goepfert has lately figured, in the 'Palæontographica' (vol. xii. pl. 36), the filaments of *Funaria hygrometrica* (a well-known English Moss) side by side with an outspread mass of Stigmarian rootlets.

But as I merely mean these remarks to be indicative of some of the many ways in which a 'Geological Notes and Queries' would be useful, I need not add to the few examples I venture to offer. Glad of such aid myself, I shall be equally pleased to find that its worth is appreciated by others.

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*To the Editor of the GEOLOGICAL MAGAZINE.*

UNFORTUNATELY for our Irish Drift, shells have only been found very rarely, so that we must do without that kind of evidence; but nevertheless the different Drifts are well marked, and seem to correspond with those mentioned by your correspondent, Mr. Maw.