

## CORRESPONDENCE.

*COCCOSTEUS MINOR*, HUGH MILLER, IN THE OLD RED SANDSTONE OF DALCROSS, INVERNESS-SHIRE.

SIR,—Whilst collecting from the Old Red Sandstone of the Hillhead Quarry, near Dalcross in Inverness-shire, Mr. Wm. Taylor, of Lhanbryde, and myself found large numbers of remains of *Coccosteus minor*, H. Miller. The quarry has yielded previously only *Homosteus Milleri*, Traq., and Osteolepid scales.

*Coccosteus minor* and *Homosteus Milleri* have not yet been found elsewhere in the Moray Firth area, but are fairly abundant at Thurso.

It thus seems probable that the Hillhead Quarry represents a different horizon to that of the ordinary nodules of Cromarty, Lethen Bar, and Tynet Burn.

D. M. S. WATSON.

THE GEOLOGICAL DEPARTMENT,  
THE UNIVERSITY OF MANCHESTER.

MESSRS. CRAWSHAY AND WORTH ON THE SUBMARINE GEOLOGY OF THE ENGLISH CHANNEL.

SIR,—I have read with much pleasure Professor Cole's appreciative reference to the papers by Messrs. Crawshay and Worth on the "Submarine Geology of the English Channel," as I feared that a geological paper published through the enterprise of a Biological Association might escape the notice of geologists. By the kindness of Mr. Worth I have been kept posted up in the progress of the great work that the Marine Biological Association has been doing. In the subject-matter of the aforesaid inquiry, physics, zoology, and geology are equally concerned, with the natural result that no physical, zoological, or geological society can be expected to afford the space to discuss it. No one could have ventured to hope that a Biological Association would have dealt with the "Rock Remains in the Bed of the English Channel" and the "Geology of the English Channel,"<sup>1</sup> more especially as neither of these subjects can directly interest pure biologists!

Readers of the GEOLOGICAL MAGAZINE have, no doubt, been much amused at my own efforts in this matter. By the year 1889 I had brought the subject before the British Association at Swansea, Southampton, York, Southport, and Birmingham; published seven papers in the Transactions of the Devon Association, one each in the Proceedings of the Royal Society, in the Journal of the Linnean Society, and in the Proceedings of the Royal Dublin Society; had made two tentative approaches to the Geological Society, with assaults on the GEOLOGICAL MAGAZINE and *Nature* unnumbered!

One of the most important problems in this inquiry is the way in which the bed of the English Channel has been kept free from the deposition of sediment. A paper on deposition and denudation, at Birmingham, in 1886, was with difficulty got on the list for reading. I printed it privately, and, though not published, it has within the present year been cited in an engineering book as an authority!

<sup>1</sup> Journal of the Marine Biological Association, vol. viii, No. 2, May, 1908.

When, in 1872, I recorded my first note from information received, and when, in 1878, I secured my first crystalline block, I was working to confirm the geological theory, *mirabile dictu*, that the Devon schists had been metamorphosed by a submarine prolongation of the post-Carboniferous Dartmoor granite. My first half-dozen specimens dispelled that phantasy. Ten years' work went to show that the Channel blocks were local, and had absolutely nothing to do with Dartmoor. Then the question of the Selsea crystalline erratics and the erratics on the Prawle coast presented itself in favour of a foreign origin. Thus some rocks were local, at any rate the Eddystone reef, but some might be foreign. None, however, claimed relation with Dartmoor. That seemed clear at that time. Since then Mr. Worth has absolutely demonstrated Dartmoor shingle in the beaches of Start Bay, and now he has demonstrated, at any rate to my satisfaction, Dartmoor gravel or stones fifteen miles south of the Eddystone. Mark the complication. We have possibly river-drift down the old drowned river-valleys; we have local rocks certainly; we may have foreign ice-borne rocks; and all in the same area. To disentangle the sizes of the rocks and stones, Mr. Crawshay's paper must be read with Mr. Worth's, as Mr. Crawshay publishes the table of size of shingle to which Mr. Worth refers.

Mr. Worth mentions Godwin-Austen's littoral shells at the mouth of the English Channel. Some occurred more than 100 miles west of the Land's End. As shells are liable to decay and to destruction by marine borers, it is difficult to assign any great antiquity to these shells. But, if modern, they must have been swept out of the Channel by currents, generally unsuspected. And, as a matter of fact, bottom currents are often created and occasionally currents are reversed during heavy gales of wind.

Mr. Crawshay convicts the Channel deposits of extreme disorderliness in their defiance of established rules.

A. R. HUNT.

August 5th, 1908.

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#### MISCELLANEOUS.

IN MEMORIAM M. JOACHIM BARRANDE,<sup>1</sup> THE GEOLOGIST OF BOHEMIA  
(1799-1883).

ON June 6th, 1908, Miss Aline Girardeau died at Prague in the 90th year of her age. She was executrix to the will of Joachim Barrande, who devoted forty years to the study of the Bohemian Silurian rocks and bequeathed his great collections to the Prague Museum. She took great interest in the completion of Barrande's work and left 12,000 kroners to the Royal Bohemian Museum for their publication. To honour his memory she bequeathed to Professor Dr. Ant. Fric 50 kroners to place a wreath on the restoration of the Barrande tablet on the Kuchelbaden Rock, Bohemia.

<sup>1</sup> See his life, *GEOL. MAG.*, 1883, p. 529.

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