

corallum, and they are all strongly crispate¹ on every part of it. Height of the corallum 7 lines; greater diameter of the calice, 3 lines, its smaller diameter 2 lines.

The greater size of this species, its remarkable costæ, and the ridges on the sides of the septa will distinguish it. In the nature of the costæ, though in no other respect, it bears some resemblance to *Sphenotrochus crispus*.

The ridges across the septa ending internally in trabiculæ are very peculiar, and give to the latter a greater degree of importance than they would otherwise have.

Localities.—Coralline Crag, Oxford; Red Crag, Boyton, Suffolk; Walton-on-the-Naze, Essex.

NOTICES OF MEMOIRS.

I.—ON THE MIGRATIONS OF PRE-GLACIAL MAN. By HENRY HICKS, M.D., F.R.S., F.G.S.²

REFERRING to the further researches carried on, this summer, at Cae Gwynn Cave, North Wales, which is 400 feet above sea-level, the author stated that the additional evidence obtained proved most conclusively that the flint implement found there last year in association with the remains of Pleistocene animals was under entirely undisturbed Glacial deposits. He maintained also that the evidence is equally clear in regard to the implements found within the caverns, which he said must have been introduced before marine action disturbed the contents of the caverns and the Glacial deposits blocked up and covered them over. The question as to the direction from which pre-Glacial man reached this country is an exceedingly interesting one, and seems now to be fairly open to discussion. It is admitted to be fraught with difficulties, but the facts recently obtained seem to require that an attempt should be made to unravel it. The evidence, so far as it goes, points to a migration to this country from some northern source, as the human relics found in the caverns, and also in the older river gravels (which Prof. Prestwich is now disposed to assign also to the early part of the Glacial epoch, when the ice-sheet was advancing), occur in association with the remains of animals of northern origin, such as the Mammoth, Rhinoceros, and Reindeer. Up to the present no human relics have been found in this country (and it is very doubtful whether they have been found in any other part of Europe) in deposits older than those containing the remains of these northern animals. If man arrived in this country from some eastern area, it is but natural to think that he would have arrived when the genial Pliocene climate tempted numerous species of Deer of southern origin, and other animals suitable as food for man, to roam about in the South-east of England.

¹ I borrow this descriptive word from MM. Milne Edwards and Haime, but it would be almost better to say that they are zigzag or serpentine.

² Abstract of Paper read in the Anthropological Section of Brit. Assoc. Manchester.

Hitherto, however, not a relic has been found to show that man had arrived in this country at that time. But in the immediately succeeding period, with the advent of cold conditions and of the northern animals, evidences of his presence become abundant.

Whether man at an earlier period migrated northward from some tropical or sub-tropical area, where he could have lived on fruit and such like food, there is no evidence at present to show; but it seems certain that the man of the Glacial period in this country lived mainly on animal food, and that he found the Reindeer to be the most suitable to supply his wants. He followed the Reindeer in their compulsory migrations, during the gradually increasing Glacial conditions, and kept mainly with them near the edge of the advancing ice.

II.—ON THE DISCOVERY OF CARBONIFEROUS FOSSILS IN A CONGLOMERATE AT MOUGHTON FELL, NEAR SETTLE, YORKSHIRE. By ROBERT LAW, F.G.S., and JAMES HORSFALL.¹

AFTER briefly noting the various exposures of the conglomerate, its unconformability with the Silurian rocks, its nature, probable age, and the circumstances which led to the discovery of fossils in it; the authors described the following section exhibited on the south-west side of Moughton Fell.

- a. Scar Limestone, of light grey colour and well jointed; layers very distinct in lower parts and almost horizontal, the genus *Bellerophon* being the commonest fossil in the lowest bed of this rock. Thickness from 300 to 500 feet.
- b. CONGLOMERATE.—Of a bluish-grey colour when newly fractured, and becoming reddish on exposure to the air. The fragments are rounded, angular, and sub-angular in form, consisting of slate, grit, flagstone, and vein-quartz, all apparently derived from Silurian rocks. Fossil shells and corals are common throughout the bed. *Bellerophon*, *Euomphalus*, *Syringopora* and *Lithostrotion* are the prevailing genera. Thickness from 1 to 12 feet.
- c. Lower Silurian slates, of great thickness, having a N.E. strike and a dip of about 65°. The dip and cleavage appear to be on the same plane in this locality.

The nature and the origin of the stones in the conglomerate were next pointed out; also it was shown that the portion of the bed in which fossils had been found was not more than 200 yards in length, and that it was thickest in the middle, thinning out to the east and west, and at one point could be seen merging into the overlying limestone.

The fossils collected from the conglomerate are as follows:—

<i>Syringopora ramulosa.</i>	<i>Bellerophon cornu-arietis.</i>
<i>Lithostrotion basaltiforme.</i>	<i>Natica plicistria.</i>
<i>Euomphalus pentangulatus.</i>	<i>Natica lirata.</i>
<i>Cirrus</i> , one species.	<i>Natica elliptica.</i>
<i>Sanguinolaria angustata.</i>	<i>Inoceramus</i> , one species.
<i>Pleurotomaria</i> , one species.	<i>Spizifera</i> , one species.
<i>Orthoceratite</i> , one species.	<i>Pecten</i> , one species.
<i>Rhynchonella acuminata.</i>	<i>Productus</i> , three species.
<i>Bellerophon tangentialis.</i>	<i>Leptaena</i> , one species.

In conclusion, attention was called to the probable method by which the conglomerate was formed.

¹ Abstract of paper read before the Geological Section of British Association, Manchester, 1887.