

The most interesting of these is certainly the rare *Hygromia revelata* (Fér.), which I came across at St. Michael's Mount. I found it high up on small ledges of rock.

From the same locality I obtained the two shells of *Testacella maugei*. One of them is unusually large, measuring 18 mm. from the tip of the vestigial spire to the anterior margin. This discovery considerably extends the known range of this species in Britain.

I obtained only one specimen of *Vitrea lucida*. In the woods among the dead leaves I found *Vitrea excavata* in abundance, also, among the ivy, the pretty little *Acanthinula aculeata*, and, in hollows, *Vitrea fulva*. In the hedgerows, and particularly among nettles, I obtained *Hygromia granulata*, *H. hispida*, and *H. rufescens*; and on walls, *Clausilia bidentata* and *Pupa cylindracea*. On the sand-hills along the coast *Helicella barbara* occurred in myriads, together with *H. virgata*, *H. itala*, and *H. caperata*; it is noteworthy on account of the abnormal shape of the shell and its limited distribution in this country.

*Ancylus fluviatilis* is the only aquatic mollusc I succeeded in finding. It was common on the stone-strewn bed of the streams.

#### VI.—ON TWO TRILOBITES FROM THE DEVONIAN SLATES OF CORNWALL, OBTAINED BY WALTER BARRATT, ESQ.

By HENRY WOODWARD, LL.D., F.R.S., F.G.S.

HAVING been favoured by Mr. Walter Barratt, of Sunnybank, Newquay, Cornwall, with the opportunity of examining two Trilobites from the Devonian slate-rock—(1) from a cove near Trevoze Head, (2) from the shore of the mainland opposite Trescore Island, Porthcothan, Cornwall,—I gladly avail myself of his permission to publish a note thereon.

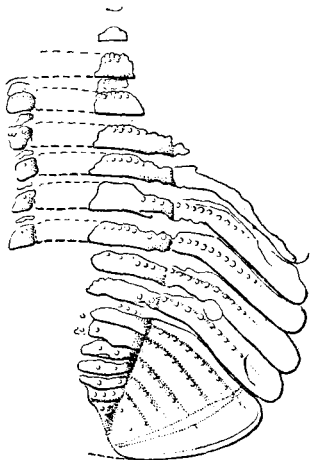


FIG. 1.—A new Devonian Trilobite from Cornwall: *Homalonotus Barratti*, sp. nov. Two-thirds nat. size. Devonian Slates: Trevoze, Porthcothan, Cornwall.

Mr. Howard Fox, F.G.S., of Falmouth, has lately directed attention to some recent discoveries of obscure organisms from the same Devonian rocks at a meeting of the Royal Geological Society of Cornwall (November, 1899), and published afterwards in the GEOLOGICAL MAGAZINE (April, 1900, Dec. IV, Vol. VII, pp. 145-152, Pl. VII); he describes and figures some of the most noteworthy of these, giving also a list of localities where found.

Mr. Fox mentions the rocks both north and south of the River Camel, in Padstow Harbour, where simple cup-corals and fragmentary crinoidal remains have been obtained; he also records that at Trevone fossils occur at several distinct horizons—*Pteraspis*, *Orthoceras*, *Bactrites*, *Goniatites*, *Euomphalus*, *Cardiola*, *Centronella*, *Phacops*, *Tentaculites*, *Styliola*, *Amplexus*, *Favosites*, and *Pachypora*. At West Newtrain Bay *Scaphiocrinus* and a Favosite coral were obtained. At Mother Ivey's Bay, *Tentaculites*, *Centronella*, *Hyolithes*, and crinoidal stems. Porthcothan Cove, south of Trevoze Head, has yielded *Petraia*, *Pleurodictyum*, *Phacops*, sp., and obscurely shown examples of *Orthoceras* and *Goniatites*. Lower Butter Cove yields similar fossils to Porthcothan and Porth Mear. Bedruthan Steps—here *Steganodictyum* (= *Pteraspis*), *Orthoceras*, *Sphærocrinus*; some corals, *Pleurodictyum*, *Aulopora*?, *Petraia* occur, with *Pteroconus mirus*, etc. At Watergate or Tregurrian Bay and Beach,  $2\frac{1}{2}$  miles north of St. Columb, Porth; also between Fowey and Polperro, the slates are found to be highly fossiliferous.

#### HOMALONOTUS, König, 1825.

*Homalonotus* is a very characteristic form of Trilobite, and is easily distinguished from other genera, even from its nearest ally, *Calymene*.

The peculiar trilobation of the body-rings, so conspicuous in most genera, is very indistinct in *Homalonotus*, especially in the thoracic segments, although in some species it is better marked in the pygidium. The shape of the body is elongate, convex, with steep sides, and a very broad axis, scarcely distinguished from the pleuræ. There are thirteen body-rings, deeply grooved, and the fulcrum is close to the axis in most of the species. The head is triangular, with an obscure quadrate glabella slightly lobed, and a quadrate labrum; the surface of the body is scabrous, occasionally spinous. The pygidium is generally narrow and pointed, except in a few species which have a more rounded contour.

Of the twenty species recorded, by far the larger number are from the Silurian. The following are from the Devonian of Devon and Cornwall (and two are also exotic, namely, *H. Herscheli* and *H. Pradoanus*):—

<i>Homalonotus armatus</i> , Burm.	Devonian: Cornwall.
„ <i>Champernownei</i> , H. Woodw.	„ Torquay.
„ <i>elongatus</i> , Salter.	„ S. Devon.
„ <i>goniopygæus</i> , H. Woodw.	„ Torquay.
„ <i>Herscheli</i> , Murch.	„ Devon and S. Africa.
„ <i>Pradoanus</i> , De Vern.	„ Spain.
„ <i>Barratti</i> , H. Woodw.	„ Cornwall.

The Devonian species of *Homalonotus* occur in Cornwall and Devon, and extend into Germany and Spain. One species is met with as far off as South Africa (*H. Herscheli*).

All the Devonian Trilobites appear to be referable to Mr. Salter's section of Homalonoti *with spines*, which he named *Burmeisteria*: this division includes all those species having the body elongate, convex; head triangular; eyes approximate on gibbous cheeks; glabella distinct, lobeless, sinuous; thorax slightly lobed and spinous, as is also the many-ribbed, pointed tail. He takes for his type *H. Herscheli*, from the Devonian.

Mr. Salter's *Homalonotus elongatus* is founded upon a *tail only*, remarkable, even in this elongated genus, for its length and shape. This form is very strongly trilobed, and appears to have had four pairs of spines along its median axis and two pairs upon the lateral portion. (See Salter: Mon. Pal. Soc., 1865, pt. ii, p. 122, pl. x, figs. 1, 2.)

*Homalonotus Champenownei* has little or no signs of trilobation, and is rather larger than the celebrated *H. delphinocephalus* from the Wenlock Limestone of Dudley; it has thirteen free moveable thoracic segments with broadly expanded pleuræ, each rib armed with a pair of spines placed about one inch apart; the head also had three pairs of spines placed on the lateral portion, and three along the medial line; there is no evidence of cheek-spines; the pygidium is imperfect. (See GEOL. MAG., 1881, Dec. II, Vol. VIII, p. 489, Pl. XIII.)

In Mr. Barratt's specimen from a cove in the Devonian slates of Trevoze Head, Cornwall, we have only evidence of one side of the pygidium, five of the posterior free thoracic segments, and fragments of others. Assuming these to have been compressed longitudinally so as to make them appear disproportionately broad and short, they still have the characteristic deep falcate margins to the free segments and the six or seven well-marked coalesced segments to the pygidium seen in other species of this genus; but, though only a fragment, we notice that each segment, both in the free thoracic rings and in the coalesced segments of the tail, is marked by a single row of small rounded tubercles uniform in size, ten on each pleura and an uncertain number on the axis of the body; those on the coalesced segments of the tail diminishing in number backwards from ten to eight, to six, to four, to three. The ribs of the tail do not extend to the margin, but leave a smooth rounded border. It would be impossible to give a more detailed description of so mere a fragment, but the single row of extremely regular tubercles on each segment suffices to separate it from other Devonian or Silurian forms with which I am acquainted. The Figure, which is reduced to two-thirds natural size, serves to convey a correct idea of this interesting fragment.

So soon as attention is directed to the occurrence of Trilobites in these Devonian slates at Trevoze, no doubt many more specimens will be found to reward the diligent seeker after organic remains. Dr. Arthur Smith Woodward, F.R.S., in his Catalogue of Fossil

Fishes, vol. ii, writes:—"Fragments of Pteraspidian shields, not sufficiently complete for precise determination, are met with in the Lower Devonian of Cornwall, and were originally described as fossil sponges by McCoy."<sup>1</sup>

Their fish-like character was first noted by Mr. C. W. Peach (Report Brit. Assoc., 1843 (1844), Trans. Sect., p. 56), who collected many specimens; they were subsequently assigned to *Pteraspis* by J. W. Salter (see Wyatt-Edgell, GEOL. MAG., Vol. V (1868), p. 247), and finally named *Scaphaspis Cornubicus* by E. Ray Lankester & H. Woodward (GEOL. MAG., Vol. V (1868), p. 248) and J. E. Lee, *ibid.* [2], Vol. IX (1882), p. 105, Pl. III, Figs. 2 and 3. Numerous fragments from Polperro are preserved in the Lee Collection in the British Museum, and larger specimens from Fowey.

These obscure fossils, first described as sponges by McCoy, were also referred to cuttle-fishes by Roemer (1855), under the name of *Archæoteuthis Dunensis* (*Palæontographica*, Dunker & von Meyer, vol. iv, p. 72, tab. xiii), now referred to *Scaphaspis Cornubicus*. The late Dr. S. P. Woodward (1856) called attention to the true ichthyic character of Roemer's supposed *Archæoteuthis* in his "Manual of the Mollusca" (p. 417).

PHACOPS, Emmrich, 1845.

*Phacops latifrons* (?), Bronn.

The specimen which I refer to this species is *only a fragment* of a small example from the mainland shore opposite Trescore Island, Porthcothan, Cornwall.

It is seen in profile; the head is *very obscure*, and is followed by *about* ten thoracic rings with rounded bevelled pleuræ; the line of the median axis is indicated on the one side preserved; the other side is wanting. Length of thoracic segments 15 mm., depth of same as half seen 15 mm.; length of pygidium 6 mm., depth of profile seen 9 mm.; there is a distinct raised and grooved border to the pygidium, but the furrows of the coalesced segments forming the tail-plate are worn away (by the sea?).

I have referred this example to *Ph. latifrons*?, doubtfully (as the specimen is so imperfect), because it is a very common Devonian Trilobite and has been obtained at quite a number of localities in Devon and Cornwall. It is to be hoped that better specimens may shortly be met with by Mr. Barratt or other Cornish geologists.

*Horizon*.—Lower Devonian. Localities: Hope and Barton, South Devon; near Liskeard and Totnes, in slates with *Pleurodictyum problematicum*.

Upper Devonian.—Barnstaple. Croyde. Brushford, Pilton, etc., abundant. Foreign localities: Rhenish Prussia, Belgium, France, Russia; Andes, South America.

<sup>1</sup> F. McCoy: Ann. and Mag. Nat. Hist. [2], vol. viii (1851), p. 481, and Brit. Palæozoic Foss. (1851), pl. ii A, figs. 1-3.