4. On a NEW GENUS of PHYLLOPODOUS CRUSTACEA from the MOFFAT SHALES (LLANDEILO FLAGS) DUMFRIESSHIRE. By HENRY WOODWARD, Esq., F.G.S., F.Z.S.

[PLATE XXV. figs. 4-7.]

HAVING lately received from Mr. D. J. Brown, of Edinburgh, specimens of shells, attributed to *Discina* and *Modiolopsis*, from Garple Burn, near Moffat, I examined them in conjunction with my colleague, Mr. W. Carruthers, F.L.S.; and we were enabled, by the help of these specimens and of others in Mr. Carruthers's own collection, to determine them all to belong to one organism (folded in some instances, and in others spread open), and that not a mollusk, but a crustacean allied to *Apus* &c.

The fossil might readily be mistaken for the upper valve of a *Discina*, having a strong resemblance to *Discina nitida* from the Carboniferous Limestone, and to *Discina lamellosa*, recent, from Peru; but upon a more careful examination nearly every specimen is found to have in the front of the shell a wedge-shaped opening with a well-defined border, which cuts the disk nearly to its centre*.

In a specimen from Mr. Carruthers's collection (Pl. XXV. fig. 7) the wedge-shaped sector which closes this opening remains *in situ*, but the suture can still be detected.

In another specimen, from Mr. Brown's collection (Pl. XXV. fig. 5), remains of the tail-segments are preserved on the same slab with the folded shell.

The carapace, for such it must be considered, is ornamented by concentric lines of growth, which curve slightly inwards upon reaching the margin of the wedge-shaped suture in front. These concentric lines are finer and closer to each other near the apex, and more strongly marked and further apart near its margin. The sector displays similar concentric lines of growth with the rest of the carapace. The form of the shell is slightly conical, as in *Discina*; but many of the specimens, being crushed, do not show the normal form. The apex of the shell is placed immediately behind the wedge-shaped suture before mentioned.

In all the specimens yet seen no dorsal furrow can be detected, the concentric lines passing smoothly in unbroken series around

* Mr. Davidson, to whom Mr. Brown had submitted certain other more minute shell-like impressions from these shales, thus writes concerning them and the fossil at present under consideration:—

“33 Park Crescent, Brighton,
“27th October, 1865.

“MY DEAR SIR,—I send for your inspection the two specimens that were sent to me by Mr. Brown, of Edinburgh, and which were derived from the Dumfriesshire beds. They are certainly obscure fossils; but the specimens you showed me were not Brachiopoda, but, as you said, remains of crustacea.

“Those I send show no indications of the fissure, or notch, and have a much more Brachiopodous look than those in London. One of them somewhat resembles a *Lingula*, the other a *Discina*; but I do not say they are Brachiopoda.

* * * * *

“I remain, very truly yours,
(Signed) “THOS. DAVIDSON.”

“To H. Woodward, Esq.”

the posterior surface up to the margins of the suture. The absence of a dorsal furrow at once separates it from *Peltocaris Harknessi* and *P. aptychoides* (Pl. XXV. fig. 6), allied forms of Phyllopodous crustacea found in the same shales.

The wedge-shaped suture, which divides the shield of this crustacean in front, doubtless corresponds with the suture in the shield of *Apus* and the nuchal furrow in the Macrurous Decapods.

A similar line of separation has already been noticed in the shield of *Peltocaris aptychoides*. (See Mr. Salter's paper in the Quart. Journ. Geol. Soc. vol. viii. pl. 21. fig. 10.)

Why, it may be asked, does the shield in this old crustacean, and also in *P. aptychoides*, always separate along this line of suture, and leave the appearance presented in the figure? (Pl. XXV. fig. 4.)

I can best explain this by referring to the recent *Apus*, in which the footjaws, branchiæ, and abdomen appear to be all strongly united to the head, and that to the rostral portion of the carapace; whilst to the far larger posterior surface of the shield the attachment is so slight that specimens always become detached in this manner, and, as in the case of the phragmacone and sheath of the fossil Belemnite, the soft parts of the animal will often be found in one locality and the carapaces *minus* the frontal portion in another.

Such is the case with *Dithyrocaris*, an allied genus, the organs of manducation of which are seldom if ever found with the shields, but in nodules (probably composed of the soft parts of the animal) in a bed by themselves*.

It may be interesting to record that among the specimens from Mr. Carruthers's cabinet is a small example of *Peltocaris aptychoides*, which exhibits the concentric lines of growth as in the *Discina*-like form herein described. (See Plate XXV. fig. 6.)

With the exception of Graptolites, fossils are of rare occurrence in the Moffat shales. Mr. Salter has, as already stated, described† two phyllopodous crustacea, *Peltocaris Harknessi* and *P. aptychoides*. Professor Harkness has found a small Brachiopod (*Siphonotreta micula*, McCoy), and Mr. J. Stevens, formerly of Moffat, a single specimen of *Tentaculites*.

The addition, therefore, of a new Phyllopod is an interesting discovery. From its resemblance to *Discina*, I have proposed for it the generic name of *Discinocaris*, and the specific appellation of *Browniana* after Mr. D. J. Brown, who first drew my attention to it.

Dimensions.—Diameter of disk-shaped carapace 7 lines, sector one-sixth of its arc. A larger specimen folded together probably measured 14 lines in diameter.

EXPLANATION OF PLATE XXV. figs. 4-7.

(Illustrative of *Discinocaris Browniana*.)

Fig. 4. *Discinocaris Browniana*, H. Woodw. Moffat Shales (Lower Silurian), Dumfriesshire. Natural size. Collection of Mr. D. J. Brown,

* Geol. Mag. vol. ii. 1865, p. 401, pl. 11.

† Quart. Journ. Geol. Soc. vol. xix. p. 87.

- Edinburgh. The wedge-shaped rostral portion is absent from this specimen.
5. The same, in which the shield is folded together. Natural size. Collection of Mr. D. J. Brown, Edinburgh.
 6. *Peltocaris aptychoides*, Salter. Moffat Shales, Dumfriesshire. Three times the natural size. Collection of W. Carruthers, Esq., F.L.S.
 7. *Discinocaris Browniana*, having the wedge-shaped rostral portion *in situ*. Natural size. Collection of W. Carruthers, Esq., F.L.S., of the British Museum.

5. NOTES relating to the DISCOVERY of PRIMORDIAL FOSSILS in the LINGULA-FLAGS in the NEIGHBOURHOOD of TYDDYNGWLADIS SILVER-LEAD MINE. By JOHN PLANT, Esq., F.G.S.

[Abstract.]

THE author recorded in this paper the discovery, during the autumn of 1865, of fossils at Tyddyingwladis in beds belonging to the Lingula-flags or Primordial zone, and partly referable to species known to occur in other parts of Wales on the same horizon.

A detailed examination of the district, undertaken by the author and Mr. E. Williamson, has enabled them to draw a section extending from the junction of the Lower and Upper Cambrians* at Cefn Deuddwr to the base of Craig-y-Dinas, which was described in detail† by the author.

The following list of the fossils found in the various divisions of the Lingula-beds adopted by the author, and arranged in their order of sequence, commencing with the lowest, have been prepared, after Mr. Salter's examination of the collection.

Tyddyingwladis Slates (Lower Lingula-beds).

No. 1. Has not been examined.	No. 2. <i>Lingulella unguiculus</i> , Salter.
No. 2. <i>Anopolenus Henrici</i> , Salter.	—, sp.
— Salteri, Hicks.	<i>Obolella</i> , sp.
—, sp.	<i>Protospongia fenestrata</i> , Salter.
<i>Paradoxides Hicksii</i> , Salter.	† <i>Dictyonema Graptolithinum</i> ?
<i>Microdiscus punctatus</i> , Salter.	No. 3. <i>Agnostus</i> , sp.
<i>Agnostus Davidis</i> , Salter.	<i>Obolella</i> , larger sp.
— princeps, Salter.	No. 4. <i>Paradoxides Davidis</i> , Salter.
—, sp.	<i>Theca corrugata</i> , Salter.
<i>Theca</i> , sp.	

Cwm Eisen Slates (Lower Lingula-beds).

No. 5. <i>Olenus cataractes</i> , Salter.	No. 5. <i>Agnostus trisectus</i> , Salter.
—, sp. nov.	Track of a Trilobite.
<i>Agnostus princeps</i> , Salter.	<i>Holocephalina</i> , sp.

Hafod Owen Sandstones (Middle Lingula-beds).

No. 6. <i>Olenus</i> , sp. nov.	No. 6. <i>Hymenocaris</i> ?
<i>Conocoryphe</i> , sp. nov.	Annelid-tracks and borings.
<i>Lingulella Davisii</i> , Salter.	† <i>Buthotrephis</i> (fucus).

* The Upper Cambrians of this author comprise the Lingula-flags, or base of the Lower Silurian, of Sir Roderick Murchison and other geologists.

† Published in full in the Transactions of the Manchester Geol. Soc. vol. v. p. 220 *et seq.*

‡ These are not Mr. Salter's naming.

Felding lith. ad nat.

M & N Hanhart imp.