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III.—On two species of Echinodermata New to the fauna of Great Britain

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- Fig. 4.* Ditto, with second root-cell and rootlet-cell formed (lateral view): (*d*) primary nucleus received into the dilatation of the cell-wall, *d'*, and rendered stationary; (*g*) oblique, sigmoid septum; (*h*) rootlet-cell; (*k*) secondary nucleus, elongated, presenting the hyaline vacuole in plurality; (*l*) nucleus of rootlet-cell. The remaining fixed protoplasm of the first root-cell having now been broken down by the vacuoles, circulates freely, with the rotating protoplasm, over the septum of the second root-cell and that of the rootlet-cell.
- Fig. 5.* Ditto, ditto, with first or duplicating septum of rootlet-cell formed, and multiple division of primary nucleolus (direct view): (*d*) primary nucleus with nucleolus divided into smaller nucleoli; (*m*) vacuoles beginning to break down fixed protoplasm in the lower part of second root-cell; (*n*) septum duplicating rootlet-cell; (*o, o*) nuclei of rootlet-cells; (*p*) lower extremity of second root-cell which is partly behind rootlet-cell.
- Fig. 6.* Ditto, ditto, with rootlet-cell quadrisected, and primary nucleus become effete (direct view): (*d*) effete nucleus from which the small nucleoli have disappeared; (*q, q, q, q*) nuclei of rootlet-cells; (*s*) second septum of rootlet-cell; (*t*) lower part of fixed protoplasm in second root-cell broken down and become rotatory. This cell is now brought into the state of figure 2.
- Fig. 7.* More magnified view of primary nucleus when young, 1-300th of an inch in diameter: (*a*) nuclear utricle; (*b*) mucus occupying its interior; (*c*) nucleolus; (*d*) hyaline vacuole.
- Fig. 8.* Ditto of primary nucleus when old; hyaline vacuole in plurality.
- Fig. 9.* Secondary nucleus soon after becoming visible; presenting double nucleoli.
- Fig. 10.* Ditto, some time after this, with nucleoli united. The next stage is represented in fig. 7 and so on.
- Fig. 11.* Nucleus with double nucleoli, presenting a transparent ring round them respectively, indicative of the presence of a capsule.
- Fig. 12.* Lateral view of primary nucleus after having become stationary, presenting (*a*) vacuoles in its interior.
- Fig. 13.* Elongated sac-like form of primary nucleus after having become stationary; presenting small nucleoli also elongated (*a, a, a*). This sac, which is a frequent termination of the nuclear utricle, is sometimes very long, and more or less irregular in form than the figure.
- Fig. 14.* Globular cells connected with the "irregularly shaped bodies" (*e, e*); sometimes seen without the latter: (*a*) common form of this "body."
- Fig. 15.* "Granules" much magnified: (*a*) round, elliptical, greenish; (*b*) angular, colourless.

III.—On two species of Echinodermata new to the Fauna of Great Britain. By L. BARRETT, F.G.S.

[With a Plate.]

THE two following species are interesting additions to our fauna, made by Mr. M'Andrew. The *Amphidotus* agrees with the brief description of *A. gibbosus*, Agass., in the Ann. Sc. Nat. t. viii. p. 11: the *Comatula* is new.

Comatula Woodwardii. Pl. VII. fig. 1.

Arms long and tapering, each ray bearing from 60 to 70 pinnæ on each side. The two pinnæ nearest the disk have each 27 joints; the third and those above it, 18. Each pinna is separated by two joints. The larger filiform processes are composed of 45 joints, gradually tapering, terminated by a claw which is larger than the joint next to it. Two specimens from the Sound of Skye, 25 to 40 fathoms, gravel and mud. I have dedicated this species to my friend S. P. Woodward, Esq.

Amphidotus gibbosus, Agass. Pl. VII. fig. 2 a, b, c.

Amphidotus gibbosus, Agass., Catalogue Raisonné des Echinides, in the Annales des Sciences Naturelles, vol. viii. p. 11.

Test cordate, as broad as long, thickly clothed with curved spines pointing towards the vent. The spines of the post-oral space have slightly flattened tips. The anterior and posterior lateral ambulacra meet at the lateral angles of the dorsal fasciole. In each of the anterior halves of the anterior lateral ambulacra there are eight very distinct pairs of pores lodged in a shallow groove; in the posterior halves of the same ambulacra there are fourteen pairs in a somewhat deeper groove. The number of pores in each row of the posterior ambulacra is equal, eleven in each series. The odd ambulacrum is covered with fine granules; the pores are not distinct, and there is no anterior groove as in *A. cordatus*. The anus is depressed, and the subanal impression quadrate, enclosing two pores on each side. The mouth is large, and placed one-third of the length of the test from the margin. The single specimen above described was dredged in 25 fathoms on the south side of Bressa Island, Zetland, on a coarse sandy bottom. It is with some hesitation that we refer this species to the *A. gibbosus* of Agass., the original description being very short and imperfect.

EXPLANATION OF PLATE VII.

Fig. 1. *Comatula Woodwardii*, nobis, nat. size.

Fig. 2 a, b, c. *Amphidotus gibbosus*, Agass., nat. size.

IV.—Notes on the Permian System of the Counties of Durham and Northumberland. By RICHARD HOWSE, South Shields.

[With a Plate.]

SINCE I had the pleasure in 1848 of drawing up a Catalogue of the fossils of the Permian System, collected by myself in the counties of Durham and Northumberland, at the request and
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