NOTES

DISTINCTIONS BETWEEN THE CARBONIFEROUS LAMELLIBRANCH GENERA *CANEYELLA*, *POSIDONIA*, AND *POSIDONIELLA*

by W. H. C. RAMSBOTTOM

EXAMPLES of lamellibranchs variously referred to the genera *Posidonia* and *Posidoniella* occur abundantly in the Viséan and Namurian rocks of England. This note gives external characters by which the two genera may be distinguished from each other and from the genus *Caneyella*. It is published with the permission of the Director of the Geological Survey of Great Britain.

POSIDONIELLA de Koninck 1885

Type species by monotypy: *Inoceramus vetustus* J. de C. Sowerby 1829, p. 162, pl. 584, fig. 2. Two specimens, now in the British Museum (Natural History), were figured by Sowerby, of which the original of the upper figure is now No. PL. 804, and that of the lower figure PL. 803. The latter is here designated lectotype, and figured on Pl. 71, fig. 9, it comes from Castleton, Derbyshire. PL. 804 is from 'near Settle', Yorkshire. The horizon of both specimens is probably B_2 zone of the Lower Carboniferous.

Remarks. In this genus the umbo is terminal and the hinge, though not clearly seen, is apparently not striate and is edentulous, and in these features the genus differs from *Myalina*. The terminal umbo distinguishes this genus from both *Posidonia* and *Caneyella*, and places the genus in the Myalinidae, in contrast to *Posidonia* and *Caneyella* which are Pectinids.

Of the British Millstone Grit species which have been referred to this genus, only *P. variabilis* Hind and forms determined as *P.* cf. *vetusta* are correctly placed here. In *P. rugata* Jackson 1927, *P. multirugata* Jackson 1927, and *P. semisulcata* Hind, the umbo is not terminal and they are here referred to *Caneyella*. *Caneyella wapanuckensis* Girty from the Caney Shale of Oklahoma apparently included at least two species. No lectotype has been chosen. Girty's fig. 9 is very like *P. variabilis* Hind, and his figs. 6, 7, and 11 are reminiscent of *Posidonia corrugata* R. Etheridge jun. Examples of the type species of *Posidoniella* and of *P. variabilis* Hind (lectotype here chosen the original of Hind 1897, pl. 7, fig. 7, Manchester Museum L. 10227) are figured on Pl. 71.

POSIDONIA Bronn 1828

Type species by monotypy: *P. becheri* Bronn 1828, pp. 262–9, pl. 2, from the Lower Carboniferous near Herborn, Germany. In Britain *P. becheri* is most abundant in rocks of Lower *Posidonia* (P_1) age, but allies occur in the B_2 zone and it has been reported in P_2.

Remarks. Weigelt (1922) considered *Posidonia* and *Caneyella* to be synonymous, but Newell (1938, p. 37) doubted the propriety of placing *Caneyella*, judged on its costate type species 'with the noncostate and otherwise quite different *Posidonia*'. The type species of the two genera, *P. becheri* and *C. richardsoni*, represent two extreme forms between which there are so many intermediates that it is difficult to draw up satisfactory diagnoses. The following scheme, however, seems to be workable.

Posidonia is here restricted to noncostate species in which the umbo is more or less centrally placed on the relatively short hinge-line, or at least not less than one-third of the length of the

hinge-line from the anterior end. *Caneyella*, as here restricted, includes both costate and a few noncostate species with a relatively long hinge-line, the umbo being usually towards the anterior end. These distinctions, when applied to adult shells, seems to have genetic significance and to separate shells which are not congeneric.

In the British Carboniferous *Posidonia* is represented by *P. becheri* (most common in the P_1 zone); *P. corrugata* and its allies, some of which are undescribed, ranging from P_2 to E_2; *P. obliquata* Brown in R_1 and possibly R_2 zones; *P. insignis* (Jackson) in G_1, and *P. gibsoni* in G_2. The well-known *P. membranacea* M'Coy (Pl. 71, fig. 14) is transferred to *Caneyella*.

CANEYELLA Girty 1909

Type species by original designation: *C. richardsoni* Girty 1909, pp. 38–39, pl. 4, figs. 1, 1*a*, Caney Shale, Oklahoma. Elias (1956, pp. 66–67) gives the horizon as the Delaware Creek member, the goniatite fauna of which is evidently of Lower Carboniferous *Posidonia* Age, possibly P_2.

Remarks. Distinction of this genus from *Posidonia* has been given above. Bisat (1924) commented that *C. richardsoni* resembled *Actinopteria* cf. *persulcata* (M'Coy) as found in the Bowland Shales of England. There is a difference, however, in that the growth lines on the posterior part of the shell as they approach the hinge-line in adult *Caneyella* bend back towards the umbo, whereas in *Actinopteria* they bend away from the umbo and form an incipient wing. Young examples of *Caneyella* may show a wing.

Of the species which Girty (1909) referred to *Caneyella* it is proposed that *C. nasuta* Girty be suppressed as a subjective synonym of *Caneyella* [*Posidonia*] *membranacea* (M'Coy), and *C. vaughani* Girty be suppressed as a subjective synonym of *Posidonia becheri* Bronn. Other species of the genus occurring in the British Carboniferous include *C.* [*Posidoniella*] *semisulcata* (Hind) in the *Homoceras* zone, *C.* [*Posidoniella*] *rugata* (Jackson) in the Upper *Reticuloceras* zone, and *C.* [*Posidoniella*] *multirugata* (Jackson) in the *Gastrioceras* zone.

REFERENCES

BISAT, W. S. 1924. A Yorkshire Carboniferous (Bowland Shale) fauna in Oklahoma, U.S.A. *Naturalist*, 86–88.

BRONN, H. 1828. *Posidonia becheri*, eine neue fossile Muschel der Übergangs-Periode. *Zeit. für Min.* N.F. **1** (4), 262–9, pl. 2.

ELIAS, M. K. 1956. Upper Mississippian and Lower Pennsylvanian formations of south-central Oklahoma. *In* Petroleum Geology of Southern Oklahoma, *Amer. Ass. Petrol. Geol.*

GIRTY, G. H. 1909. The fauna of the Caney Shale of Oklahoma. *Bull. U.S. Geol. Surv.* **377**, 1–104, pl. 1–13.

HIND, W. 1897. A monograph of the British Carboniferous Lamellibranchiata, Pt. 2. *Palaeontogr. Soc.*

JACKSON, J. W. 1927. New Carboniferous Lamellibranchs and notes on other forms. *Mem. Proc. Manchester Lit. Phil. Soc.* **71**, 93–122, pl. 1–3.

NEWELL, N. D. 1938. Late Paleozoic Pelecypods: Pectinacea. *Kansas Geol. Surv.* **10**, 1–123, pl. 1–20.

SOWERBY, J. DE C. 1829. *The Mineral Conchology of Great Britain*, **6**. London.

WEIGELT, J. 1922. Die Bedeutung der Jungendformen karbonischer Posidonomyen für ihre Systematik. *Palaeontographica*, **64**, 43–130.

A NEW LIASSIC DRAGONFLY FROM GLOUCESTERSHIRE

by F. E. ZEUNER

THE dragonflies of the Lias are of great phylogenetic interest as evolution was at that time very rapid. It is worth while, therefore, to describe a new form from Cheltenham, Gloucestershire.