NOTE ON THE OCCURRENCE OF *EURYDESMA* IN THE UPPER MARINE (PERMO-CARBONIFEROUS) OF NEW SOUTH WALES.

By W. G. WOOLNOUGH, D.Sc., F.G.S.,
Assistant Lecturer in Mineralogy and Petrology and Demonstrator in Geology, University of Sydney.

[With Plate XXXV.]

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UNTIL quite recently *Eurydesma* was looked upon by the geologists of New South Wales as characteristic of the Lower Marine Beds; but in 1905 Süssmilch[1] discovered it in rocks near Belford whose age is considered to be Upper Marine. An interesting section was examined recently by the author in Wattle Ponds Creek (a tributary of the Hunter River) above the point where it crosses the Dyrring Road, three and a half miles in a straight line north-east of Singleton.

An exposure of the Bolwarra Conglomerate is met with in portion 34, Parish of Darlington, giving rise to the bare stony outcrop so characteristic of this rock. The dip is N. 60° W. at 10°. Following the creek for a distance of about 1,500 yards, we pass over sandy mudstones with abundant glacial erratics, many of them decidedly facetted, and an occasional one obscurely striated. The dip of this formation (Branxton Beds) is not quite constant, but varies from the value given above for the Bolwarra Conglomerate to N. 50° W. at 8°. This indicates a thickness of some 694 feet for this part of the glacial beds.

Next comes a zone containing very large erratics; one, of Silurian limestone (see below), has a length of nearly

[1] Proc. Linn. Soc. N. S. Wales, 1906, xxxi, pt. i, p. 175.

four feet, while another, of Devonian quartzite, is exposed for a length of over four feet six inches. The zone of large erratics has a thickness of approximately 100 feet. The mudstone containing the erratics is simply crowded with *Strophalosia* and other fossils (see below). It is at the base of this zone that large and beautifully preserved specimens of *Eurydesma* occur. As determined by Mr. Dun, the species is *E. hobartense* and not *E. cordatum*, which is the one so characteristic of the Lower Marine Beds.

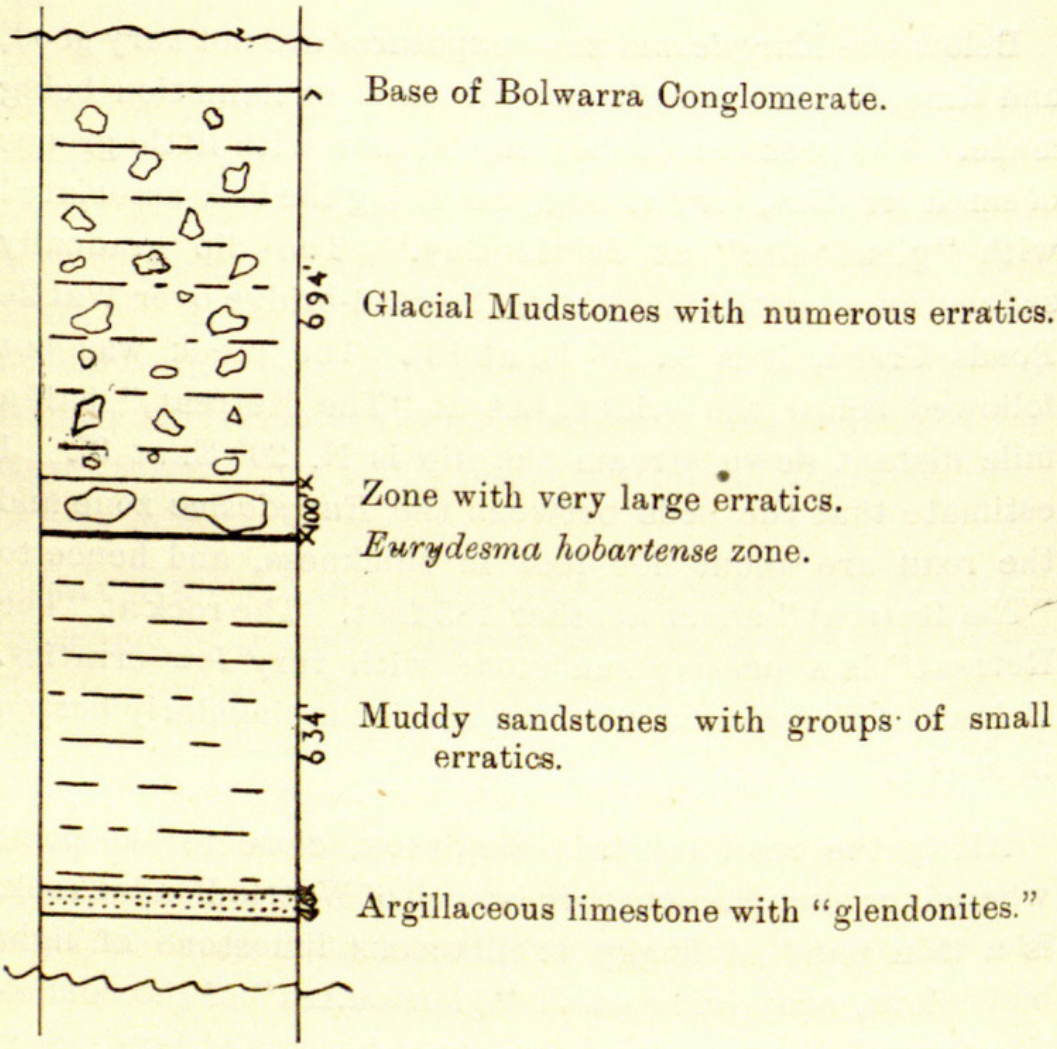
Below the *Eurydesma* zone exposures are not very good, and time did not permit of a detailed examination being made. The rocks are sandy mudstones with little groups of small erratics, very strongly recalling the beds associated with "glendonite" at Jervis Bay.[1] The dip gradually swings round until, just above the road-bridge over Wattle Ponds Creek, it is N. 50° E. at 10°. The creek was not followed below the bridge, but at "The Retreat," half a mile distant down stream the dip is N. 20° E. at 3°. I estimate that the beds between the *Eurydesma* zone and the road are about 450 feet in thickness, and hence to "The Retreat" about another 185 feet. The rock at "The Retreat" is a massive sandstone with very few erratics. Below the *Eurydesma* zone the section is singularly barren in fossils.

Along the road towards Singleton, close to the point where it crosses the southern branch of Wattle Ponds Creek, is a thin band of flaggy argillaceous limestone of light buff colour, containing small "glendonites" of the composite type characteristic of the upper horizon of Jervis Bay. From the arrangement of the beds this horizon appears to lie slightly below the sandstone of "The Retreat"; but in absence of definite measurements it is impossible to estimate

[1] Records Geol. Surv. N,S. Wales, 1905, Vol. VIII, p. ii, p. 168.

its position accurately. I anticipate that it will be found some 40 feet to 50 feet below the shelf of sandstone above mentioned.

Summary.—The geological section of the Upper Marine Permo-Carboniferous Beds in Wattle Ponds Creek, between Portion 34, Parish of Darlington, County of Durham, and "The Retreat," at the junction of the main creek and a tributary in the temporary common, is as represented in the figure below.



The most noteworthy features of the section are:—

1. A zone of very large glacial erratics, some 694 feet below the base of the Bolwarra conglomerate;
2. A zone with well preserved *Eurydesma hobartense*, about 794 feet below the same datum; and

3. A zone of glendonite pseudomorphs at 1,480 feet (approximately) below the same point.

I am indebted to Mr. W. S. Dun, Government Palæontologist and Lecturer in Palæontology at the University of Sydney, for the following list of fossils collected by me during a hurried visit to the section described above. The list is far from complete, fossils being very abundant and well preserved in the belt immediately overlying the *Eurydesma* zone.

In the Upper Marine Glacial Sandstones:—*Strophalosia Clarkei; Eurydesma hobartense*; *Deltopecten subquinquelineatus; Productus brachythœrus; Fenestella (?) fossula; Chœnomya Etheridgei*; *Martiniopsis subradiata* (var.); *Mœonia carinata* (var.). In a large erratic of Silurian limestone:—*Favosites gothlandica* traces of a Stromatoporoid.

EXPLANATION OF PLATE XXXV.

Figs. 1 and 2 Photographs of a block of glacial sandstone containing well preserved *Eurydesma hobartense*. Fig. 1 $\times \frac{2}{3}$ about; Fig. 2 $\times \frac{1}{2}$.

Woolnough, Walter George. 1910. "Note on the occurrence of Eurydesma in the upper marine (Permo-Carboniferous) of New South Wales." *Journal and proceedings of the Royal Society of New South Wales* 44, 556–559. https://doi.org/10.5962/p.359576.

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