

FENESTELLA AND *POLYPORA* (?) IN SOUTH-EASTERN QUEENSLAND.

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The present note is written for the purpose of recording the occurrence of *Fenestella* and *Polypora* (?) in a boulder about eight inches in diameter in a conglomerate of Cainozoic age near Richmond Gap (Grady's Gap); and also of calling attention to some of the questions suggested by its occurrence. The boulder consists of an olive-green, somewhat indurated shale, and contains at least two species of bryozoan, and in addition a few fragments of a crinoid stem. One of the bryozoans is certainly identical with *Polypora* (?) *smithii*, Eth. fil., as figured in "Geology and Palæontology of Queensland," plate 9, figs. 1-3, but not with plate 44, figs. 9-10 (it is indeed difficult to reconcile figures 9 and 10 on plate 44 with the description on page 219 and figures 1-3 on plate 9); the other bryozoan is probably *Fenestella fossula*, Lonsd.

The beds in which the boulder occurs, consist of sandstone and conglomerate which undoubtedly appear to be interbedded with one another; Dr. Richards has calculated their thickness at a minimum of 20 feet, and their height above sea level as about 1,000 ft. They dip in a general south-westerly direction at a small angle (about 5°) and outcrop on the road at Lahey's Cutting in portion 58v, Parish of Telemon.

In 1911* Mr. R. A. Wearne recorded the discovery of a specimen of *Fenestella fossula* immediately north-west of Mt. Barney and about 16 or 17 miles west of Richmond Gap; from this specimen he concluded that rocks of Permo-Carboniferous age existed in that district where they were formerly considered Trias-Jura. He refers to the same specimen elsewhere† and comments on the fact that the rocks are quite undisturbed. In this connection it might be pointed out here that the nearest rocks of undoubted Permo-Carboniferous age both in Queensland (Warwick District), and New South Wales (north of Drake and Rivertree) have all suffered a considerable amount of metamorphism.

Mr. Wearne has informed me that he collected the specimen when time did not permit him to make any further investigations as to its source, and he agrees with me that it was probably another such occurrence as the one now recorded.

The nearest outcrop of Permo-Carboniferous rocks to Richmond Gap is about 25 miles away in a south-westerly direction‡. They are excessively folded and faulted and contain indurated clays and shales. These extend southwards past Drake and have been described by Andrew §. At various points in them fossils have been found and these include *Fenestella fossula* and *F. internata*. These rocks extend to the east under the Clarence series, but it is not known how far.

Permo-Carboniferous rocks also occur at Warwick, about 60 miles N. of W. from Richmond Gap, and they are extensively folded and faulted.

Fragments of plant fossils were found in the sandstone associated with the conglomerates, but they were too fragmentary for determination. Dr. Richards has visited the area again, and found further specimens which prove the sandstone to be of Cainozoic Age. The remains he found include dicotyledonous leaves and portions of a fern

*Proc. Roy. Soc., N.S.W., xlv., 1911, p. 142.

†A.A.A.S., xii. (Sydney, 1911), p. 125.

‡See Geological map of N.S.W., 1914.

§Geol. Surv., N.S.W., Mineral Resources No. 12, 1908.

probably identical with *Pteris abbreviata* Deane described from Elsmore, New England District, N.S.W.* Dr. Richards† has placed the conglomerate and sandstone between the middle and upper divisions of the volcanic rocks to which he assigns‡ a (?) middle and (?) upper Cainozoic age respectively.

The source of the boulder containing *Fenestella* and *Polypora* (?), seems almost certainly to be in the Drake District, and we have, therefore, further indication of a south to north drainage in Cainozoic times.

Dr. Richards§ has already shown that the general direction of the drainage when the volcanic rocks were poured out was north and south. Wearne and Woolnough|| on the other hand, suggest that in Cainozoic times the Water Divide was far to the east of its present position, and that there were at least four important streams flowing in a westerly direction.

These two views appear to be in conflict, and of the two, the north and south drainage is based on the more definite evidence. Whether the two can be shown to be in harmony is a question for future study.

*H. Deane Rec. Geol. Surv., N.S.W., vii. (1900-04), p. 231, pl. XLV.

†Proc. Roy. Soc. Qld., xxvii (1915), 1916, p. 115.

‡Op. cit., p. 125.

§Proc. Roy. Soc., Qld., xxvii., 1916, p. 110.

||Op. cit, p. 139.



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