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Record of Glossopteris from Cygnet

By

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Plate XIII

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Plate XIII is a photograph of a small frond of *Glossopteris* from the Cygnet coal measures, recorded as confirming R. M. Johnston's observations.

These coal measures have been described by Johnston (1888), Twelvetrees (1902) and Reid (1922). Johnston records *Vertebraria* and 'a dwarf form of *Gangamopteris* probably identical with *G. spathulata* (M'Coy)'. In Plate X figures 4-8 he illustrates specimens from Adventure Bay.

On several occasions I have made as thorough a search as possible for fossils in the Cygnet coal seams without identifiable result except for fragments of *Vertebraria*. The fossil here indicated was found at 'Heaney's Mine' (Reid, 1922, p. 145) about 2 inches below the floor of the coal seam.

From the examination in the field I feel much doubt whether these coal measures should not be grouped with the Springs sandstone series rather than with the permian marine mudstones. Rocks of the Fern Tree stage underlie the coal measures but the marine series ends regularly and abruptly. The coal measures appear to me to be the base of the Springs sandstones as developed in the area and to merge gently upwards into this series. The stratigraphical break occurs at the top of the marine mudstones, not at the top of the coal measures.

The finding of this fossil, therefore, becomes of great interest. It has been submitted to Dr. A. B. Walkom who pronounces it to be definitely a *Glossopteris* but unfortunately not sufficiently well preserved to be certain of its species. It appears to me to be identical with Johnston's *Gangamopteris* from Adventure Bay. A fragment of *Vertebraria* occurs in the same piece of rock (at right angles to the bedding planes) and a section is discernible just above the leaf in the plate accompanying this paper. It is generally accepted that the Adventure Bay and Cygnet coal measures are as similar as those isolated coal basins ever are (see Johnston 1888 pp. 142-144). I consider that these coal measures should be regarded as forming the base or, in time, the earliest phase of the freshwater sandstone series.

Johnston's determination of *Gangamopteris spathulata* (M'Coy) should be corrected to *Glossopteris* sp. Both this fossil and Johnston's discoveries are small forms. Their prevalence over two separated areas leads to the impression that these are a dwarf or decadent form and not merely small specimens. It would be wrong to group them with *Gangamopteris spathulata* (M'Coy) as this is probably quite a distinct plant which Johnston, working on poorer material, has confused.

The fossil in question and, hence, Johnston's *Gangamopteris spathulata* (M'Coy), can only be called *Glossopteris* sp. until a specimen sufficiently well preserved for description is found.

It appears that the *Glossopteris* flora, in a decadent phase, persisted to the time of or immediately preceding the deposition of the Springs sandstone. No marked time interval between this and the Fern Tree stage of the Upper Permian Marine Mudstone is discernible here or elsewhere in Southern Tasmania. Only a little higher (some 700 feet) in the Springs Sandstones are found terrestrial fossils assigned to Upper Triassic (Rhaetic) age (Walkom 1926, p. 68). Only a little lower (again some 700 feet), shell fossils assigned to the Upper Permian are to be found. The Fern Tree stage and Springs stage averaging some 1400-1500 feet in thickness represent in Tasmania the time interval between the Upper Permian and the Upper Triassic, and no material disconformity has been discovered in the series. It appears therefore that the inclusion of this dwarf form of *Glossopteris* is hardly sufficient to assign these coal measures definitely to a Permian age and, on the other hand, the base, at least, of the Ross sandstones should probably be dated as very low in the Triassic. A considerable time interval covered by the series mentioned is evident and much resorting on a very stable terrain is indicated.

References

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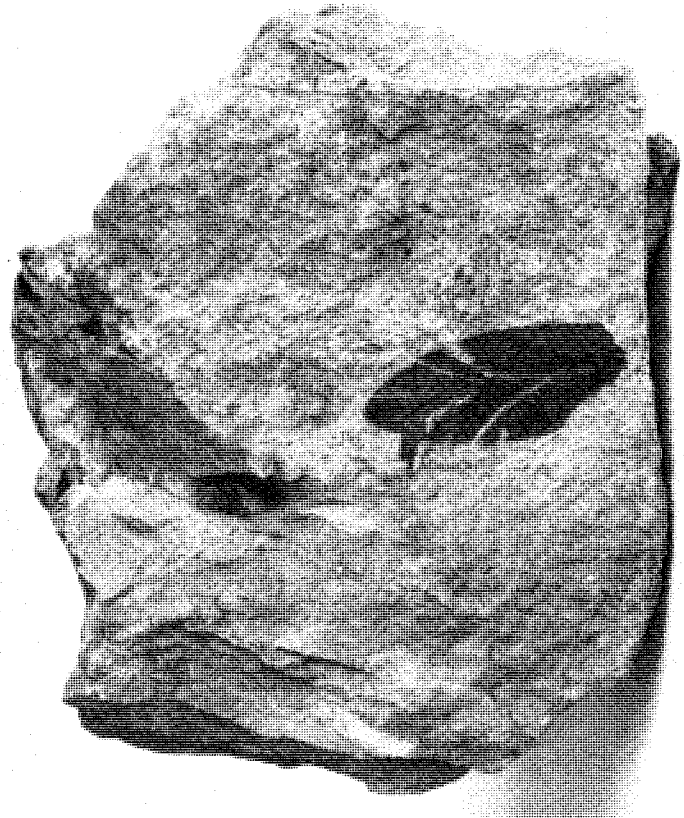

Glossopteris sp. from Cygnet. Natural size.