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RECORDS:

1964/64

1963 PLANT FOSSIL COLLECTIONS FROM HUGHENDEN AREA GREAT ARTESIAN BASIN

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SUMMARY

Plant fossils were collected at 20 localities by the Great Artesian Basin party in 1963. Localities are in Blantyre Sandstone, for which a Jurassic or Lower Cretaceous age is indicated; in Betts Creek Beds, which contain Upper Permian fossils in two Boonderoo Beds for which a Permian age is indicated; and in Mackunda Beds and Winton Formation which contain Lower Cretaceous plants.

I. Localities in Blantyre Sandstone.

1. Locality GAB 1044: Hughenden 9/5149; Flinders Gorge.

Unit: "Blantyre Sandstone. ?Jurassic."

Specimens F 2241.4.T

A stem impression 6 inches long and 1 inch wide, with a pattern of depressions on the surface and some indication of adpressed leaves along the margins is probably referable to Pagiophyllum peregrinum L. & H. Preservation is poor and the identification is tentative.

Pagiophyllum peregrinum is a Conifer with a Jurassic and Lower Cretaceous distribution.

Age: ?Jurassic or Lower Cretaceous.

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2. Locality GAB 1045: Hughenden 10/5199; Flinders Gorge.

Unit: "Blantyre Sandstone. ?Jurassic".

Specimens F 22415.

A large collection was made at this locality as it was hoped that the plant fossils might elucidate a stratigraphical problem by determining the size of the unconformity between Blantyre Sandstone and Gilbert River Formation. Preservation of the fossils is poor. Specimens were split repeatedly in the hopes of disclosing new forms but only three species form the plant assemblage.

Cladophlebis australis (Morr). is present in very great abundance, fronds and pinnules showing considerable size range and variation in form as is characteristic of the species. There is one example of a fertile frond of the species in which the narrower, straighter pinnules bear sporangia in rows on either side of the midrib. It is remarkable that there should be only one small example of fertile pinnules in a very large collection such as this when the sterile pinnules are present in such vast numbers.

Coniopteris hymenophylloides Brongn. is associated with Cladophlebis australis in a number of specimens. It also shows considerable range of size and form. Some very small fronds are referred to Coniopteris delicatula (Shirley). These may be strictly referable to Coniopteris hymenophylloides, representing very small fronds of the species. There is some doubt as to the validity of the species delicatula.

The three plants present have a Jurassic and Lower Cretaceous distribution. They are therefore of no assistance in elucidating the stratigraphical problems in the area.

Age: Jurassic or Lower Cretaceous.

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3. Locality GAB 987: Hughenden 11 w - c /5123; Rockies Waterhole.

Unit: "Blantyre Sandstone. ?Jurassic".

Specimens F 22416.

A collection of plant fossils was made from this locality in 1962 (see Records 1963/35, M.E.W.). Cladophlebis australis (Morr.) was determined. The unit was then known as Longsight Sandstone, and at another locality GAB 1033, Cladophlebis australis was associated with leaf fragments of Linguifolium and Taeniopteris type.

The present collection of very poor specimens does not contribute any more information. Small plant fragments with part of a pinnule of Cladophlebis type are present. All the fragments are indeterminate and give no indication of age.

Age: Indeterminate.

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4. Locality GAB 1076: Hughenden 7/5067; Mickey Spring.

Unit: "Blantyre Sandstone. ?Jurassic".

Specimens F 22417.

These specimens are very fine grained white mudstone which crumbles into a chalky powder. The plant remains are in the form of small fragments of tissue apparently mainly of stem origin. A few indistinct pinnules are possibly referable to Coniopteris, but cannot be positively identified.

Age: Indeterminate.

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5. Locality GAB 1090: Hughenden 6/5035; Galah Gorge.

Unit: "Blantyre Sandstone. ?Jurassic".

Specimens F 22418.

Indeterminate stem and wood casts and impressions in a fine grained sandstone give no indication of the age of the specimens.

Age: Indeterminate.

Note on the Age of the Blantyre Sandstone:

Plant fossils were collected from five localities in Blantyre Sandstone. At three localities no determinate plants were present and no age determination was possible. At the remaining two localities, the plants present have a Jurassic and Lower Cretaceous distribution. No forms with limited range are present to enable a more precise age determination to be made. The plant evidence is consistent with the Geologists' assumption of Jurassic age.

II. Localities in Betts Creek Beds

6. Locality GAB 1048: Hughenden 6/5025; Oxley Creek.

Unit: "Betts Creek Beds. Permian."

Specimens F 22419.

These specimens contain very small, indeterminate stems.

Age: Indeterminate.

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7. Locality GAB 1049: Hughenden 6/5027; Oxley Creek.

Unit: "Betts Creek Beds. Permian"

Specimens F 22420.

Small, indeterminate stems are present. Some are ribbon-like and smooth, others are striated and might be Equisetalean.

Age: Indeterminate.

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8. Locality GAB 1063: Hughenden 9/5165; Betts Creek.

Unit: "Betts Creek Beds. Permian".

Specimens F 22421

Some of the specimens are coarse brown sandstone containing ferruginized impressions of fragments of Glossopteris leaves. In the white, fine-grained specimens preservation is poor. The following are identified:-

Glossopteris conspicua Feist.

Glossopteris indica Sch.

Glossopteris communis Feist.

Glossopteris mitchelli Walk.

Glossopteris conspicua and Glossopteris mitchelli are upper Permian forms.

Age: Upper Permian.

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9. Locality GAB 1066A: Hughenden 9/5165; Betts Creek.

Unit: "Betts Creek Beds. Permian".

Specimens F 22422.

The preservation of these specimens is poor. Vertebraria indica Royle is present, indicating Permian age, and some indeterminate stems are probably Equisetalean.

Age: Permian.

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10. Locality GAB 1068: Charters Towers 7/5095; Milray Station.

Unit: "Betts Creek Beds. Permian".

Specimens F 22423

Wood impressions, portions of silicified wood and fragmentary ferruginized impressions are indeterminate.

Age: Indeterminate.

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11. Locality GAB 1073A: Hughenden 6/5035; Galah Gorge.

Unit: "Betts Creek Beds. Permian."

Specimens F 22424.

The following Glossopteris assemblage is present:-

Glossopteris browniana Brong.
Glossopteris communis Feist.
Glossopteris angustifolia Brong.
Glossopteris mitchelli Walk.

Glossopteris mitchelli Walk. is illustrated in Figure 1.

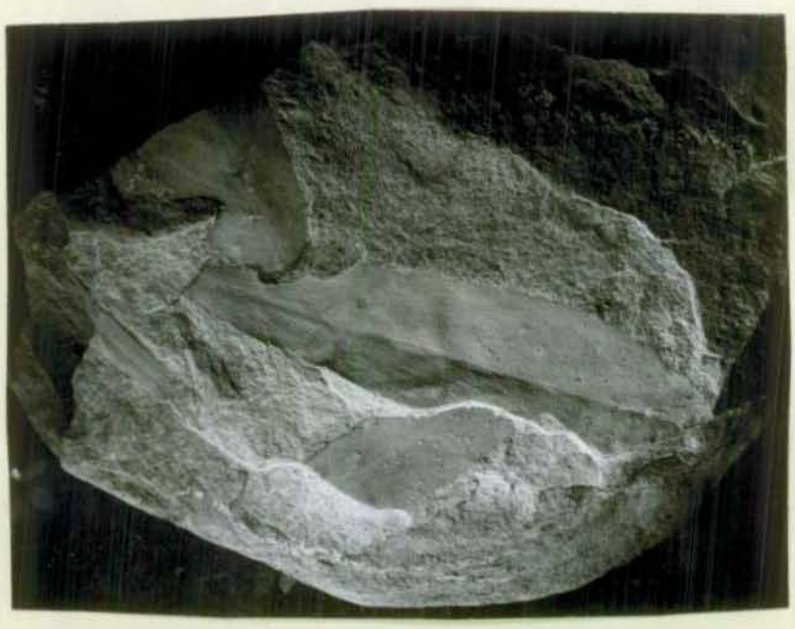

Figure 1: Glossopteris mitchelli Walk.
Natural size. Negative no. F./3941

It will be observed that there is a midrib which presists to the tip of the leaf, that the lateral veins are almost parallel to this midrib and that there is no visible anastomosing of laterals. The appearance of this leaf is close to Palaeovittaria (in which the midrib or groove does not persist above the middle of the leaf) and to Gangamopteris, in which there is more anastomosing of the lateral veins. A leaf such as this is difficult to classify, and some examples in the specimens in which only the median parts of leaves are preserved are strikingly similar to Gangamopteris in general appearance.

The tendency in this species towards the formation of a leaf with parallel veins is an advanced one, leading towards the Monocotyledonous leaf in Angiosperms. It is known that the Angiosperms root in the Glossopteridalean seed ferns. (Another advanced tendency in Upper Permian Glossopterids is that towards Taeniopteris where the lateral veins develop at right angles to the midrib and run straight to the margins with minimum anastomosing.)

Age: Upper Permian.

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12. Locality GAB 1073B: Hughenden, 6/5035; Galah Gorge.

Unit: "Betts Creek Beds. Permian."
Specimens F 22425

These specimens are poor and deeply weathered. The following are identified :-

Vertebraria indica Royle

Glossopteris communis Feist.

Taeniopteris (Macrotaeniopteris) cf. T. wianamattae Feist.

Taeniopteris cf. T. wianamattae Feist was recorded from an Upper Permian locality at Mitchell River in North Queensland in 1961 (Records 1961/16, M.E.W.) in a Glossopteris assemblage. It was described originally from the Narabeen Series of N.S.W. in passage beds from Permian to Triassic with Glossopteris. Its presence at locality GAB 1073B may be assumed to indicate Upper Permian age.

Age: Upper Permian.

Note on the Age of Betts Creek Beds:

The plants at three of the seven localities in Betts Creek Beds were indeterminate. At a fourth Vertebraria indica, of general Permian distribution, is present. At three localities Upper Permian Glossopteris assemblages occur. The age of the Betts Creek Beds is therefore Upper Permian at least in part.

III. Locality in Boonderoo Beds

13. Locality GAB 1034: Hughenden 5/5075; Galah Gorge.

Unit:"Boonderoo Beds near the base of the glacial sequence; from clasts of carbonaceous shale and greywacke caught up in a conglomerate which probably represents outwash. Glacial sequence apparently unconformably below the Upper Permian sequence recorded from Loc.GAB 1034 in 1962 (White, 1963). Age Lower Permian or Carboniferous."

Specimens F 22432

These specimens contain small, indeterminate plant fragments and two small portions of Glossopteris type venation. The Glossopteris fragments indicate Permian age.

Age: Permian.

IV. Localities in Winton Formation

14. Locality GAB 1316: Muttaburra 11/5055; Richfield.

Unit: "Winton Formation. Lower Cretaceous".

Specimens F 22428.

Indeterminate stem and wood casts and impressions and an impression of a bract-like structure which may be referrable to Cycadolepis are present. Cycadolepis is a Lower Cretaceous form.

Age: Indeterminate.

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15. Locality GAB 1338A: Muttaburra 12/5005; Richfield.

Unit: "Winton Formation. Lower Cretaceous".

Specimens F 22429.

In these specimens, large, laceolate leaves occur. They have parallel venation, contracted bases which show a regular absciss line, and are obtusely pointed. They are referable to Zamites sp. or to Podozamites. The genus chosen for such detached pinnae is a matter of individual preferance. There is no evidence of basal callosities or other features which assist in determination. They are similar to leaves described as Zamites takuraensis Walk. (Walkom, 1919) described from the Burrum Series in Queensland.

Zamites (and allied genera) ranges from Rhaetic to Lower Cretaceous, so the presence of this genus in the Winton Formation is consistent with a Lower Cretaceous age for the Formation.

Age: Lower Cretaceous.

V. Locality in Wilgunya Formation

16. Locality GAB 1353A: Muttaburra 12/5029; Muttaburra.

Unit: "Allaru Member of Wilgunya Formation. Lower Cretaceous".

Specimens F 22430.

Indeterminate wood and stem impressions.

Age: Indeterminate.

VI. Localities in Mackunda Beds

17. Locality GAB 1371: Muttaburra 5/5129; Hillview Station.

Unit: "Mackunda Beds. Lower Cretaceous".

Specimens F 22431

These specimens contain fragments of plant tissue. There are a few examples which appear to show Dicotyledonous venation and one example of a leaf fragment with parallel venation of the type seen at locality GAB 1338A referred to Zamites.

Age: ?Cretaceous.

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18. Locality GAB 1399: Muttaburra 3/5085; approx. 33 miles N.W. of Muttaburra.

Unit: "Mackunda Beds. Lower Cretaceous".

Specimens F 22433.

Preservation is poor. Parts of two small leaves which have midribs and closely crowded laterals appear to be referable to Phyllopteris lanceolatus L. & H. This is a Lower Cretaceous species.

Age: ?Lower Cretaceous.

VII. Localities in formations not yet classified.

19. Locality GAB 1075A. Hughenden 8/5157. Prairie Creek.

Unit: "Either Blantyre Sandstone or Gilbert River Formation 20 feet above 1075B."

Specimens F 22426.

Minute plant fragments. Indeterminate.

Age: Indeterminate.

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20. Locality GAB 1075B. Hughenden 8/5157. Prairie Creek.

Unit: "As 1075A, 20 feet below."

Specimens F 22427.

Fragments of macerated plant material. Indeterminate.

Age: Indeterminate.

References

WALKOM, A.B., 1919 - Mesozoic Floras of Queensland. III & IV. Floras of the Burrum and Styx River series. Qld.geol.Surv.Publ. 263.

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