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REPORT ON 1964 PLANT FOSSIL COLLECTIONS

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PART I

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PART 1

Report on 1964 Plant Fossil Collection from the

GREAT ARTESIAN BASIN

Summary:

Plant fossils were collected at 14 localities in the Great Artesian Basin in 1964. A Triassic - Jurassic flora occurs in the Clematis Sandstone; the Dunda Beds underlying the Clematis Sandstone also contain plants with a Triassic - Jurassic distribution; the Basal Moolayember Formation overlying Clematis Sandstone contains Upper Triassic - Jurassic plants. This suggests that Dunda Beds and Clematis Sandstone are Triassic and Basal Moolayember Upper Triassic - Jurassic in age.

Permian plants occur at five localities. Forms diagnostic of Upper Permian are present in Colinlea Sandstone (locality GAB 1755) and at locality GAB 1464.

Introduction:

Plant fossils were collected at 14 localities in 1964 from an area extending roughly from Lake Buchanan to Jericho and Alpha. The fossils at some of the localities are well preserved and it has been possible to determine the age of nine of the fossil horizons.

Details of locality and plants identified follow:-

I. LOCALITIES ON THE BUCHANAN 4-MILE SHEET.

A. Locality GAB 1447: Photo ref. 4/5032/6.
10 miles N.E. of Yarrowmere Homestead.

Unit: "Betts Creek Beds".

Specimens F 22599.

The plant remains in these specimens are mainly indeterminate stem and wood impressions. *Vertebraria indica* Royle and *Sphenopteris polymorpha* Feist. are identified. They indicate Permian age. They are not restricted to Upper or Lower Permian.

Age: Permian

B. Locality GAB 1448: Photo ref. 4/5028/14.
White Cliffs.

Unit: "Palaeozoic, possibly Joe Joe Formation or older".

Specimens F 22586.

These gritty sandstone specimens contain casts of stems. Some show vertical ribbing and are of Calamite appearance, but preservation is poor and no determination can be made.

Age: Indeterminate.

C. Locality GAB 1454: Photo ref. 9/5072/33.

9 miles NNW of Moray Downs Homestead.

Unit : "Palaeozoic, probably Joe Joe Formation or older".

Specimens F 22587.

These cherty specimens contain indeterminate plant fragments and wood and stem impressions.

Age: Indeterminate.

II. LOCALITIES ON THE GALILEE 4-MILE SHEET

A. Locality GAB 1458: Photo ref. 13/5063/53.

13 miles NW of Forester Homestead.

Unit : "Dunda Beds"

Specimens F 22590.

These iron-rich specimens contain a great amount of plant material - wood, stem and leaf impressions and macerated fragments. The only determinate forms are:-

Thinnfeldia acuta Walkom
? Taeniopteris spatulata McClell
Equisetalean stem

These plants are members of the Ipswich and Walloon floras in Queensland and indicate a Triassic or Lower Jurassic age. (Thinnfeldia acuta was recorded from the Mollayember Shale in 1963 plant fossil collections from Taroom. (Records 1964/37).

Age: Triassic or Lower Jurassic.

B. Locality GAB 1459A: Photo ref. 13/5063/54.

14 miles NW of Forester Homestead, at 70' in measured section X37.

Unit : "Clematis Sandstone"

Specimens F 22592 and F 22593 (Figured specimen).

The following are identified:-

(a) Dicroidium odontopteroides (Morr) Gothan. Preservation is good and pinnules of various types referable to this species are present. A large frond with a pitted rachis is illustrated in Figure I (specimen F 22593). The pinnules close to the rachis are not deeply indented. A portion of a second frond to the left of the main one shows more typical well defined pinnules of the species.

FIGURE I. (Neg. F.4756)
Dicroidium odontopteroides (Morr) Gothan
Specimen F 22593. Natural size.

(b) Indistinct impression of a fine frond of delicate structure - referable to Sphenopteris sp. This specimen is identified as cf. S. superba Shirley. Townrow (1957) has included Sphenopteris superba in Dicroidium but there is no advantage in renaming sterile fronds.

(c) ? Ginkgo antarctica Saporta. A portion of a leaf showing a slightly lobed top is referred to this species. It is a poor specimen and identification is tentative.

(d) Equisetalean stem.

Dicroidium odontopteroides, Sphenopteris superba and Ginkgo antarctica have a Triassic - Lower Jurassic distribution.

Age: Triassic or Lower Jurassic.

C. Locality GAB 1459B: Photo ref. 13/5063/54.
14 miles NW of Forester Homestead, at 190' in measured section X37.

Unit: "Basal Mooleyember Formation"

Specimens F 22591.

The following are identified:-

Cladophlebis australis (Morr.)
Equisetalean stem
Equisetalean nodal diaphragm.
Seeds.

Ginkgo cf. G. magnifolia (Fontaine). Portion of a large lamina about 6 cm across and maximum length preserved 7 cm. is referred tentatively to Ginkgo magnifolia. The main lamina has a lobed segment on one side. This specimen is similar to Fig. 3 on Plate 4 of Walkom (1917). Ginkgo magnifolia occurs in the Ipswich and Walloon series in Queensland.

Dicroidium odontopteroides (Morr.) Gothan.

Age: Triassic or Lower Jurassic.

III. LOCALITIES ON THE JERICHO 4-MILE SHEET

A. Locality GAB 1455: Photo ref. 2/5151/2

34 miles N. of Jericho on main road.

Unit: "Basal Moolayember Formation"

Specimens F 22596.

Preservation is poor. Fragments of stems and bits of plant tissue predominate. The following tentative determinations are made:-

Equisetalean stems.

Seeds - ovate casts of small, bulky seeds, and impressions of flat, winged seeds are present.

? Sphenopteris sp. - portion of a small frond showing Sphenopteroid venation. Species indet.

? Neocalamites or ? Equisetites - Herbaceous Equisetalean with numerous linear segments in the leaf sheath.

Age: Indeterminate.

B. Locality GAB 1460: Photo ref. 1/5067/22

11 miles WSW of Forester Homestead.

Unit: "Dunda Beds"

Specimens F 22594.

The following plant remains can be identified in these specimens:-

A cone scale referable to Araucarites sp.

? Cladophlebis australis (Morr.). Poor specimen.

? Coniopteris delicatula Shirley. Minute fern pinnules.

? Ginkgo antarctica Saporta - very small leaf appears to be referable to the species.

All of the above forms occur in the Ipswich and Walloon Series in Queensland.

Age: Triassic or Jurassic.

C. Locality GAB 1462: Photo ref. 2/5141/25.
13 miles N. of Hobartville Homestead.
Unit: "Upper (?) Permian"
Specimens F 22588.
Two small, indeterminate stem impressions.
Age: Indeterminate.

D. Locality GAB 1463: Photo ref. 4A/5017/26.
5 miles NNE of Hobartville Homestead.
Unit: "Upper (?) Permian"
Specimens F 22601

Well preserved impressions of leaves are mainly Glossopteris communis Feist., with a few examples of Glossopteris indica Sch. and Glossopteris angustifolia Brong.

Age: Permian. No indication whether Upper or Lower.

E. Locality GAB 1464: Photo ref. 9/5029/28.
Railway Quarry, 8 miles W. of Alpha.
Unit: "Upper (?) Permian"
Specimens F 22602, and F22603, F22604. Figured specimens.

Excellently preserved impressions on a fine-grained white mudstone. The following plants are identified:-

Glossopteris indica Sch.
Glossopteris angustifolia Brong.
Glossopteris mitchelli Walk. - this is an Upper Permian form.
Glossopteris scale leaf.
Glossopteris longicaulis Feist. Figure 2 of specimen F 22603 shows two leaves of the species with the laminae gradually tapering into very long petioles.
"Dictyopteridium sporiferum Feist." - a fertile fragment of leaf of the type found at Baralaba etc. in Upper Bowen series. This represents the male fructification of a species of Glossopteris.
Sphenopteris polymorpha Feist - Fern fronds.
Samaropsis dawsoni Shirley - part of a large seed over 1 cm in circumference.
Nooggerathiopsis hislopi (Bunb) - Narrow leaves with fine parallel veins, and broader leaves, also finely veined, some showing the blunt apex, are referred to this form species. They are of the type ranging throughout Permian, not of the type characteristic of Lower Permian.
Annularia sp. Specimen F 22604 is illustrated in Figure 3. Two leaf whorls are present. Each segment has a prominent midrib and is free from adjacent segments. Fine striations are discernable at right angles to the midribs of the leaf segments. This is a feature often seen in Annularia and related genera.

FIGURE 2 (Neg. F.4757)

Glossopteris longicaulis Feist.

Specimen F 22603. Natural size.

FIGURE 3 (Neg. F.4758)

Annularia sp.

Specimen F 22604. Natural size.

Age: This is an Upper Permian Glossopteris assemblage.

F. Locality GAB 1465: Photo ref. 9/5023/38.

Railway cutting, 7 miles E. of Jericho.

Unit: "Basal Moolayember Formation"

Specimens F 22597 and F 22598 (figured specimen).

Preservation is not very good. The following are identified:-

(a) large frond of Thinnfeldia type which is closest to Thinnfeldia talbragarensis Walkom. Fronds of this type are hard to classify as there is considerable variation within species. Thinnfeldia talbragarensis was described from the Jurassic Talbragar Fish Beds of Victoria (Walkom, 1921), but similar fronds referable to allied species range throughout Triassic and Jurassic.

(b) Equisetalean stems.

(c) Leaf of Podozamites lanceolatus L. and H. - Specimen F 22598 is illustrated in Figure 4. The species has an Upper Triassic - Cretaceous distribution.

Age: The plants present at this locality indicate Upper Triassic or Jurassic age.

FIGURE 4 (Neg. F.4759)

Podozamites lanceolatus L. and H.

Specimen F 22598. Natural size.

G. Locality GAB 1553: Photo ref. 12/5145/323.
10 miles W. of Chesalon Homestead.
Unit: "Dunda Beds"
Specimens F 22595.

Indeterminate stem impressions and plant fragments.

Age: Indeterminate.

H. Locality GAB 1742: Photo ref. 15/5011/343.
3 miles E. of Sedgeford Homestead.
Unit: "Upper Joe Joe Formation"
Specimens F 22589.

These specimens contain several indeterminate stem casts and impressions. A fragment of Glossopteris venation and a bit of Equisetalean stem are the only recognisable remains.

Age: Permian.

I. Locality GAB 1755: Photo ref. 14/5013/364.
4 miles WNW of Sedgeford Homestead.
Unit: "Colinlea Sandstone"
Specimens F 22600.

Preservation on the whole is poor, but a few good impressions of the following plants are present:-

Glossopteris mitchelli Walk.
Glossopteris communis Feist.
Glossopteris indica Sch.
Glossopteris scale leaf - Pointed type.
Noeggerathiopsis hislopi (Bunb.) - of the type which ranges throughout Permian.
Sphenopteris polymorpha Feist.

Age: Upper Permian.

J. and K. Localities GAB 1741 and GAB 1748 were included with the plant fossil collection. They contain no organic remains, but are wrinkle marks and cracks in mudstone and casts of cracks etc..

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