COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

RECORDS:

REPORT ON PLANT FOSSILS COLLECTED IN THE DUARINGA REGION, QUEENSLAND, IN 1962.

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by

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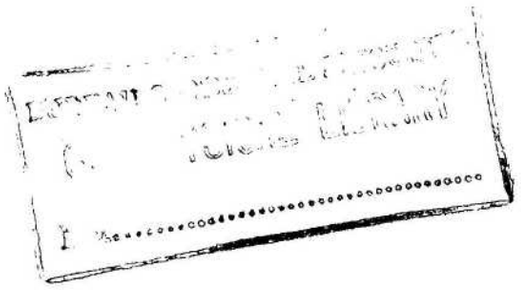

Report on Plant Fossils collected in the Duaringa Region, Queensland, in 1962.

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Records 1963/34

Summary:

Permian plants were collected at six localities in the Duaringa area in 1962. At a locality in Upper Bowen sediments (D. 873) a new type of Glossopteris fructification believed to be that of Glossopteris ampla Dana occurs. It is referred to Cistella ampla sp. nov.

Jurassic or Lower Cretaceous plants occur at locality 971 in the matrix of a conglomerate which contains pebbles of rock types similar to the surrounding Permian. sediments.

Plant fossils were collected at nine localities in the Duaringa region in 1962. Details of localities, plants identified and age determinations follow:-

1. Locality 163 E: Duaringa 4-mile; Run 8/5021.
(Unit - ?Permian, Middle Bowen Beds)

Specimens F 22280

Noeggerathiopsis hislopi (Bunb.)?

The specimen is poor and the determination is tentative. However, the impression appears to be of the type of Noeggerathiopsis hislopi characteristic of Lower Bowen sediments. (See attached note on Noeggerathiopsis).

Age: ?Lower Permian, or Upper Carboniferous?

2. Locality Du. 520: Duaringa 4-mile; Run 6/5063.
(Unit - Middle Bowen Beds)

Specimens F 22281

These specimens are very poor. A narrow leaf with parallel margins and a well defined midrib and fine secondary venation of Glossopteris type is probably referable to Glossopteris angustifolia Bgt, a long-ranging Permian form.

Age: ?Permian

3. Locality Du. 758: Duaringa 4-mile; Run 5/5099.
("Unit - Upper Bowen Coal Measures).

Specimens F 22282 and F 22283

Glossopteris indica Sch.
Glossopteris angustifolia Bgt.
Vertebraria indica Royle.
Equisetalean stems.

"Dictyopteridium sporiferum" Feist. of the same type as is associated with Cistella bowensis sp. nov. (M.E.W. ms.) from Baralaba, Queensland.

Glossopteris damudica ?

Age: Permian - ? Upper Bowen, on presence of the Dictyopteridium sporiferum.

4. Locality Du. 829: Duaringa 4-mile; Run 1/5103.
("Unit - ? Permian, Middle Bowen Beds)

Specimens F 22284

Equisetalean stems

Age: Indeterminate.

5. Locality Du. 873: Duaringa 4-mile; Run 3/5071
("Unit - Upper Bowen Coal Measures")

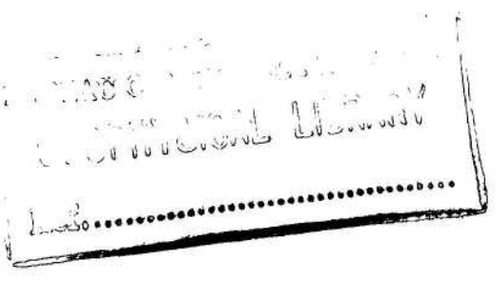
Specimens F 22285, F 22286, and F 22287 -
Figured specimens.
F 22288 bulk of collection.

Glossopteris ampla Dana.
Cistella ampla sp. nov.
Glossopteris conspicua Fm.
Glossopteris indica Sch. ?

Age: Upper Permian.

The specimens from this locality are most beautifully preserved and of great interest. Very large leaves of Glossopteris ampla are present in large numbers. A few small leaves of G. conspicua and two medium size leaves which may be G. indica are also present. Cone-like fructifications, some complete, and many more or less fragmentary, occur on many of the specimens. These are referred to Cistella ampla sp. nov. They are believed to be the fructifications of Glossopteris ampla.

Details of the specimens from which the description of the new species will be compiled for publication are as follows:-



Specimen F 22285: Part of an oval cone-like body 3.5 cm long and 3 cm. wide is present. A stem .6 cm. wide and .8cm long enters the base of the cone. The surface of the cone is regularly pitted with pear-shaped depressions averaging .5 cm long and .4 cm wide. Each appears to contain a seed of Nummulospermum bowensis Walk. type. There are about 50 such depressions on the surface of the cone. Large leaves of Glossopteris ampla are associated. Figure 1 shows the fructification and leaves, magnification X 2.

Specimen F 22286: Two fructifications are present on this specimen with large leaves of Glossopteris ampla and with many seeds from the fructifications separately preserved. Figure 2 shows a cone in which a smooth, leaf like layer covers the sacs (or pits), whose presence underneath is revealed by bumps and depressions. At the point marked by an arrow in the Figure, the surface-covering layer has been chipped away and the sacs are seen as three-dimensional bodies. The fructification was obviously fleshy and bulky.

Figure 3 shows a very large fructification. Dimensions (of the incomplete body) are 7 cm X 5 cm. The very numerous sacs average .5 x .4 cm. An area of smooth wing .5 cm wide is seen on the right side of the cone, a narrower wing on the opposite side.

Figure 4 shows seeds free in the rock matrix. Each has the same dimensions and the same markings as the sac-contents on complete fructifications.

Specimen F 22287: Figure 5 shows a pear-shaped fructification 7 cm. long and 4 cm. wide at the broadest part. The left side of the cone is covered by the smooth leaf-like tissue seen in Fig. 2, the right side shows sacs on the surface, and in particular a row of marginal sacs .5 cm. deep.

Interpretation of the fructifications:

There is no fluted wing round the fructification such as occurs in Scutum. The fructification appears to be two-sided - the one showing the sacs, and the other a leaf-like cover. In examples seen from the sac-covered side, the smooth wing beyond the marginal sacs is probably the projecting edge of the leaf-like covering part. The fructification is therefore of the type referred to Cistella Plumstead, and the name Cistella ampla is proposed because of the strong possibility that the fruits belong to the leaves with which they are associated.

6. Locality Du. 971: Duaringa 4-mile; Run 1/5101.
(Unit "Permian or younger)

Specimens F 22289

Taeniopteris cf. T. spatulata var. major Seward.
Taeniopteris spatulata McClell.
Cladophlebis australis Morr.

Age: Jurassic or Lower Cretaceous. (All occur in the Styx River Series in Queensland with which correlation is made).

7. Locality Du. 1212: Duaringa 4-mile; Run 4/5046.
(Unit "Lower Permian Dinner Creek Beds")

Specimen F 22290

Noeggerathiopsis hislopi (Bunb.)

Age: Lower Permian. The Noeggerathiopsis is of the type present in Lower Permian beds.

8. Locality Du. 1230: Duaringa 4-mile; Run 5/5107
(Unit -"?Permian Middle Bowen beds")

Specimens F 22291.

Indeterminate.

9. Locality Du. 5 F: Duaringa 4-mile; Run 1 15113.
(Unit -"Upper Bowen Coal Measures")
(Upper Permian)

Specimens F 22292

Glossopteris angustifolia Bgt.
Glossopteris indica Sch.
Glossopteris conspicua Feist.
Glossopteris ampla Dana.
Cladophlebis roylei Arber.

Age: Permian. Upper Bowen.

Note On Noeggerathiopsis hislopi (Bunb.)

"Noeggerathiopsis hislopi (Bunb.)" is a form-species name given to leaves which exhibit strongly parallel venation. Many shapes and sizes of leaf are involved. Long, narrow leaves, similar to Monocotyledon leaves in modern floras, (in general appearance) are most strictly referable to the species. Many broader examples with nearly parallel margins which taper towards the leaf base are also included. However, there are some broad leaves found in Lower Permian and Upper Carboniferous horizons in Australia and South Africa, with strong parallel venation, which have been referred to the species in the past for want of any better name to use. One such leaf is known as Palaeovittaria kurzi which has been described bearing Glossopteris type fructifications in the Lower Permian of South Africa.

It is impossible to define exactly when a coarse-parallel-veined leaf shows sufficient divergence in the veins from strictly parallel formation to warrant inclusion in Palaeovittaria kurzi. Usually preservation of leaves is of impression type with only major features of secondary venation visible and no detail of cell or stomata structure to assist.

Characteristic of the Lower Bowen series in Australia are large numbers of coarsely, more or less parrallel-veined leaves. They differ very markedly from the most typical long, narrow, parrallel-veined leaves of "Noeggerathiopsis hislopi" such as occur in the Greta Coal Measures as well as in the Upper Coal Measures in N.S.W. Wherever there is a record of an Upper Permian or even a Triassic occurrence of the species it involves leaves of the latter type, not of the type characteristic of the Lower Permian.

It seems probable that the Lower Permian type of "Noeggerathiopsis" is not justifiably referred to the genus and not in any way connected with the Cordaitales. It is much more likely that it is related to the Glossopteridae and to the "Palaeovittaria kurzi" which bears Glossopterid fructifications in South Africa. It is doubtful, however, if there is a good case for using the name "Palaeovittaria" in this instance. Some advanced Glossopterids (cf. mitchelli etc.) in Upper Permian horizons have evolved towards Taeniopteris and are now referred to as Palaeovittaria.

In identification of leaves in recent B.M.R. collections I have referred to Noeggerathiopsis hislopi "of Lower Bowen type" and have determined Lower Permian or Upper Carboniferous age for the fossil horizons. I am not aware of any example of N.h. "of Lower Bowen type" which occurs in Upper Permian strata, and have hopes that the type is confined to the earliest Gangamopteris and Glossopteris floras. I believe that Dr. Evans has isolated spores from horizons which contain Lower Bowen type Noeggerathiopsis and it will be interesting to see whether the separation of Upper and Lower Permian on this basis is valid. If it is, I think the time has come to give a new name to the leaves involved - a new genus "of unknown affinities" would be far less confusing to deal with. Noeggerathiopsis hislopi could then be more closely defined and limited.

The range of the limited Noeggerathiopsis hislopi (with leaves narrow in proportion to their length, veins parallel, and tapering gradually to a relatively broad base, (many examples are known where such leaves are found attached in radiate manner) is Permian to Lower Triassic. But the range of the new genus would be Lower Permian and Upper Carboniferous.

Plate 1

Cistella ampla Sp. Nov.

Figure 1: Fructification showing sacs containing seeds.
Leaves of *Glossopteris ampla* Dana.
Magnification X 2.

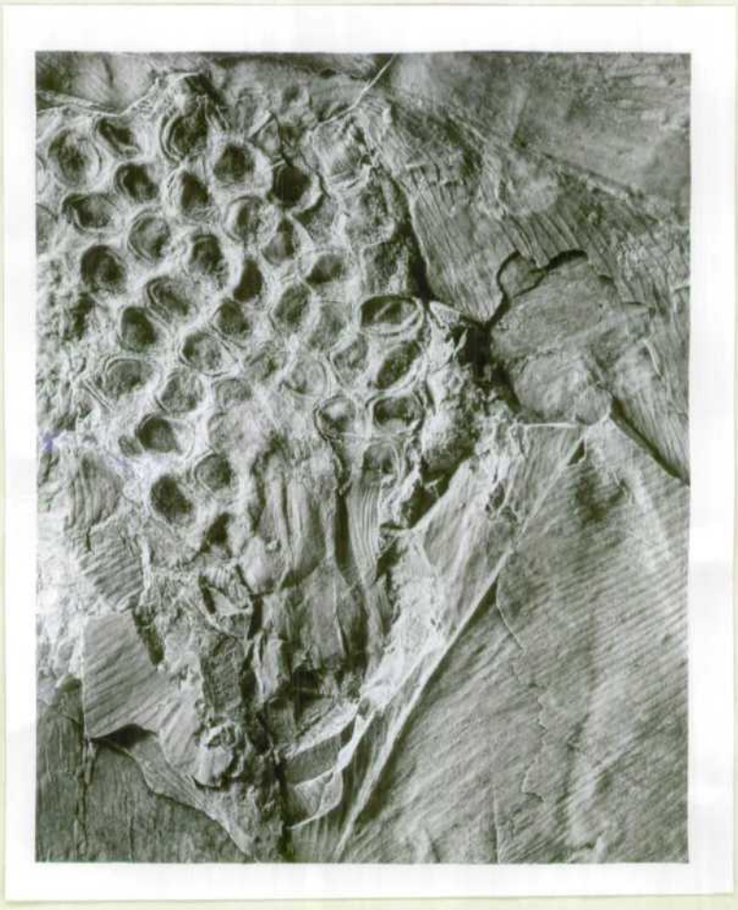


Plate 2.

Cistella ampla sp. nov.

Figures 2 – 5

Fig.2.

Fig.3.

Fig.4.

Fig.5.

Magnification natural size.