

# VI.—Western Australian Fossil Plants,

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As explained in the general introduction the fossil flora of the State is very scanty, still it has been the cause of a good deal of discussion from time to time, as may be gathered from the Introduction and Historical Sketch in the *Glossopteris Flora* (1) by Mr. E. A. Newell Arber, of Cambridge University, and from several of the Bulletins issued by this Department. (2).

The Collie plant-remains were originally considered to be of Mesozoic Age, as explained by Mr. H. P. Woodward, in the Annual General Report for the year 1890, of the Government Geologist (page 40). A little later the late R. Etheridge, F.R.S., determined them as Permo-Carboniferous, basing his opinion on the specimens submitted to him for examination. In 1897, Mr. E. F. Pittman, the Government Geologist of New South Wales, classed them as Mesozoic in consequence of "Mr. R. Etheridge's (junr.), doubtful recognition of *Sagenopteris*." On the other hand, in 1898, Sir Frederick McCoy reported the determination with certainty of *Glossopteris Browniana* (Brong), and stated that the beds were of "the exact geological age of the great Coalfields of Newcastle in New South Wales." Dr. Jack, during his investigation, as Royal Commissioner, of the Collie Coal Industry, in 1904, came to the conclusion that the beds were of much later date, writing "I am at present inclined to believe that 'the Collie Coalfield will turn out to be possibly of Cretaceous Age. . . .'" (3). In the following year, Mr. F. Chapman, of Melbourne, after examining some specimens in the Collection of the National Museum, Melbourne, identified five species of *Glossopteris*, as well as the following Foraminifera whose range in time is as under:—

Name.	Range in Time.
<i>Endothyra</i> , sp. . . . .	Carboniferous Limestone
<i>Valvulina plicata</i> (Brady) . . . .	L and U. Carboniferous
<i>Bulimina</i> (?) sp. . . . .	Permo-Carbonif. of N.S.W., Triassic to Recent
<i>Truncatulina Haidingeri</i> (D'Orb)	Permo.-Carboniferous
<i>Pulvinulina c.f. exigua</i> (Brady)	(Genus) Lower Lias to Recent.

(1.) Catalogue of the Fossil Plants of the *Glossopteris Flora* in the Department of Geology, British Museum (Natural History), London 1905.

(2.) Bulletin G.S., W.A., 26, p. 58 *et. seq.*, Bull. 27, articles 1 and 2, 1907.

(3.) Report of the Royal Commission on the Collie Coal Field, 15 p. 7—1905.

Although the two doubtful forms may belong to more recent beds, the species determined with certainty are typically Carboniferous, the whole series "point in a general way to the Palæozoic (Permo-Carboniferous) Age of the series in which they were found." Since that time, no conflicting evidence has come to hand, so that in spite of the peculiar lithological character of the beds there seems little if any doubt about the age of the Collie Coal Seams, and their associated fossils. (1).

Though the known Palæozoic flora of the State is scanty, that obtained up to the present from the Mesozoic beds is much more so. Before the specimens described by Mr. Newell Arber in this Bulletin were found, the discoveries were limited to badly-preserved fossil wood, similar to the pieces referred to by Mr. Arber on page 27, so that the determination of even the one species, *Otozamites Feistmanteli* (Zigno), is a great advancement, one which suggests that the locality near Mingenew may yield a good harvest at some future time when it is possible to make a prolonged and systematic search in the beds, whence these few plants were obtained by Mr. W. D. Campbell, in 1908.

*References.*—The plan adopted in the list of the fossil fauna is continued.

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(1) *Glossopteris* is a genus of ferns which is looked upon as being not younger than Triassic or Rhætic, E. A. Newell Arber, *loc. cit.*

# WESTERN AUSTRALIAN FOSSIL PLANTS.

(a.) PALÆOZOIC.

The following plants are recorded from Carboniferous and Permo-Carboniferous Strata :—

Genus and Species.	Locality.	Reference.	Exhibited.		
			Geol. Surv. Museum.	Australian Museum.	Victorian Museum.
<i>Calamites</i> sp. . . . .	Kimberley . . . . .	e. . . . .	..	..	..
<b>Chondrites (?) sp.</b> . . . . .	Minilya R. . . . .	n.P.u. . . . .	×	..	..
<i>Cyperites</i> (?) sp. . . . .	Kimberley . . . . .	I. . . . .	×	..	..
<b>Glossopteris Browniana</b> (Brong.) . . . . .	Gascoyne R. and Collie Coal-field	n.r.S. . . . .	×	..	×
„ <b>angustifolia</b> (Brong.) . . . . .	Collie Coalfield . . . . .	n.r.S. . . . .	×	..	×
„ <b>communis</b> (Feistm.) * . . . . .	Do. . . . .	n.r.S. . . . .	..	..	×
„ <b>gangamopteroides</b> (Feistm.) . . . . .	Do. . . . .	n.r.S. . . . .	×	..	×
„ <b>Indica</b> (Brong.) * . . . . .	Do. . . . .	n.r.S. . . . .	..	..	×
„ <b>spp. ind.</b> . . . . .	Do. . . . .	n.r.S. . . . .	×	×	..
„ <b>(Vertebraria) sp.</b> . . . . .	Collie Coalfield and Bulls Brook	n.r.S. . . . .	×	..	×
<b>Lepidodendron</b> sp. . . . .	Kimberley . . . . .	e.i.r. . . . .	×	..	..
„ <b>(Knorria condition) sp.</b> . . . . .	Do. . . . .	e.i. . . . .	×	..	..
„ <b>(Sagenaria) sp.</b> . . . . .	Do. . . . .	e. . . . .	..	..	..
<i>Lepidophyllum</i> (?) sp. . . . .	Do. . . . .	e. . . . .	..	..	..
<i>Lepidostrobus</i> sp. . . . .	Do. . . . .	e.i. . . . .	..	..	..
<i>Rhizomopteris</i> (?) sp. . . . .	Collie Coalfield . . . . .	S. . . . .	..	..	×
<i>Sigillaria</i> sp. . . . .	Kimberley . . . . .	e. . . . .	..	..	..
<i>Stigmara</i> sp. . . . .	Do. . . . .	e.r. . . . .	..	..	..
<b>Noeggerathia</b> (?) sp. . . . .	Collie Coalfield . . . . .	r.s. . . . .	×	..	..

\* Some authorities consider these two species to be identical. *Vide* Bulletin 27, pp. 12 and 13.

WESTERN AUSTRALIAN FOSSIL PLANTS--continued.

(b.) MESOZOIC.

The following plants are recorded from Jurassic Strata :—

Genus and Species.	Locality.	Reference.	Exhibited.		
			Geol. Surv. Museum.		
<i>c.f. Araucaria peregrina</i> (Kurr.) .. .. .	3 m. South of Mingenew ..	t. .. ..	×	..	..
<i>c.f. Cunninghamites Australis</i> (Ten. Woods) ..	Do. .. ..	t. .. ..	×	..	..
<i>c.f. Pagiophyllum</i> sp. .. .. .	Do. .. ..	t. .. ..	×	..	..
<i>Otozamites Feistmanteli</i> (Zigno) .. .. .	Do. .. ..	t.u. ..	×	..	..
" sp. .. .. .	Mount Hill .. ..	u. .. ..	×	..	..
<b>Fern fronds</b> .. .. .	3m. South of Mingenew ..	t.u. ..	×	..	..
<b>Seed Vessels</b> .. .. .	Do. .. ..	t.u. ..	×	..	..
<i>c.f. Williamsonia pecten</i> (Phill.) * .. ..	Point Torment near Derby ..	.. ..	×	..	..

\* This is the first indication of the presence of Mesozoic strata in the Kimberley Division of the State.