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✓ FURTHER PALYNOLOGICAL OBSERVATIONS ON F.B.H. EUMERALLA NO. 1 AND  
F.B.H. PRETTY HILL NO. 1 WELLS

In a recent report Dettmann (1963) presented results of preliminary palynological analyses of core samples from between 3,311 and 10,308 feet in Eumeralla No. 1 well and from between 2,928 and 7,597 feet in Pretty Hill No. 1 well. The presence of the Speciosus and Paradoxa Assemblages within these sections lead Dettmann to believe that the strata range in age from Valanginian-Aptian to Upper Albian or lowermost Upper Cretaceous. At a later date (1964a) and following the definition of Assemblages II and III in the Port Campbell wells, the author noted that core 5 in Eumeralla No. 1 well contains an admixture of the Paradoxa Assemblage and Assemblage II and suggested that the microflora of core 7 in Pretty Hill No. 1 well is probably referable to Assemblage III. Further examinations of the original and new preparations of these two cores has been carried out and a reappraisal of their ages is presented herein. Moreover, observations made on stratigraphically higher cores in the two wells (Eumeralla No. 1, core 4; Pretty Hill No. 1, cores 6 and 4) are documented and the distribution of Assemblages II and III within the wells is discussed.

Results of other palynological work available to the writer and carried out on sediments from Eumeralla No. 1 and Pretty Hill No. 1 wells are incorporated in works by Evans (1963) and Cookson and Manum (1964). The evidence presented by these authors is in agreement with the results obtained by the writer.

Speciosus Assemblage

As outlined previously (Dettmann, 1963), this assemblage of Valanginian-Aptian age shows the following occurrence in Eumeralla No. 1 and Pretty Hill No. 1 wells: Eumeralla No. 1 well between 6,034 and 10,308 feet; Pretty Hill No. 1 well between 5,420 and 7,214 feet. Furthermore, the two categories of this assemblage have been recorded as follows: a) older category: Eumeralla No. 1 well between 7,225 and 10,308 feet; Pretty Hill No. 1 well between 6,690 and 7,214 feet. b) younger category: Eumeralla No. 1 well between 6,034 and 6,720 feet.

Paradoxa Assemblage

The Aptian-Albian Paradoxa Assemblage was recorded from Eumeralla No. 1 well between 3,311 and 5,816 feet and from Pretty Hill No. 1 well between 3,340 and 4,960 feet. The upper horizons (3,311-21 feet) in the Eumeralla interval contain Coptospora paradoxa (Cookson and Dettmann) in association with the angiosperm Tricolpites sp.; such an association is considered to represent an admixture of the Paradoxa Assemblage and Assemblage II, and to indicate an Upper Albian age (see Dettmann 1964a, p.3). A comparable association is here recorded (see Table 1) from core 7 in Pretty Hill No. 1 well. In a previous report (Dettmann, 1963) cf. Gleicheniidites sp., the index of Assemblage III, was reported from this sample whilst Coptospora paradoxa appeared to be absent. However, further investigations of the original and new preparations of the sample has revealed the presence of several undoubted representatives of both C. paradoxa and Tricolpites sp.; the sole example of cf. Gleicheniidites sp. present in the residues exhibits preservation reminiscent of those encountered in stratigraphically higher

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cores and is thus believed to be a contaminant from higher in the sequence. These data indicate that core 7 in Pretty Hill No. 1 well and core 5 in Eumeralla No. 1 well are approximately contemporaneous in age (Upper Albian) and are probable correlatives of the following horizons in the Otway Basin: Timboon No. 5 bore at 3,500-04 feet and Wangoom No. 2 bore at 3,439-43 feet (see Dettmann 1964b, c).

### Assemblage II

Microfloras conformable with Assemblage II as originally defined (Dettmann 1964a) are either absent from or were not sampled in the Eumeralla and Pretty Hill wells.

### Assemblage III

Well preserved microfloras in which cf. Gleicheniidites sp. and microplankton make their first appearance were identified in core 6 from Pretty Hill No. 1 well and core 4 from Eumeralla No. 1 well (see Table 1). The diverse association recovered from core 6, Pretty Hill No. 1 well includes the stratigraphically significant microplankton species Deflandrea cretacea Cookson, D. victoriensis Cookson and Manum (= D. tripartita Cookson and Eisenack in previous reports; see Cookson and Manum 1964), Hexagonifera vermiculata Cookson and Eisenack, and Amphidiadema denticulata Cookson and Eisenack which indicate a Turonian/Senonian age. On the basis of H. vermiculata the sample is suggested to be a correlative of the following horizons: Port Campbell No. 1 well at 5,223-33 feet; Port Campbell No. 3 well at 4,400-10 feet; Port Campbell No. 4 well at 4,112-32 feet; Flaxmans No. 1 well at 5,950-70 feet; and Wangoom No. 2 bore at 3,016-35 feet. Core 4 from higher in the Pretty Hill sequence yielded Assemblage III containing cf. Gleicheniidites sp., abundant angiosperms, and sparse microplankton. In Eumeralla No. 1 well, core 4 yielded similarly abundant angiosperm grains and sparse microplankton including Deflandrea cretacea which suggests an age no older than Turonian/Senonian.

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Mary E. Dettmann  
Department of Geology,  
University of Queensland,  
St. Lucia, Queensland.

REFERENCES

- Cookson, I. C. and Manum, S. 1964 On Deflandrea victoriensis n. sp., D. tripartita Cookson and Eisenack, and related species. Proc. Roy. Soc. Vict., V. 77, 521-524.
- Dettmann, M. E. 1963 Palynological Report on Non-marine Lower Cretaceous Sediments Intersected in F.B.H. Eumeralla No. 1 and F.B.H. Pretty Hill No. 1 Wells. Unpublished report submitted to Frome-Broken Hill Co. Pty. Ltd., 14/11/63.
- \_\_\_\_\_ 1964a Palynological Report on Mesozoic Core Samples from the Lower Horizons Intersected in F.B.H. Port Campbell No. 1, No. 2, and No. 3 Wells. Unpublished report submitted to Frome-Broken Hill Co. Pty. Ltd., 3/3/64.
- \_\_\_\_\_ 1964b Palynological Report on Core Samples from Timboon No. 5 Bore. Unpublished report submitted to Frome-Broken Hill Co. Pty. Ltd., 24/4/64.
- \_\_\_\_\_ 1964c Palynological Report on Wangoom No. 2 and No. 6 Bores. Unpublished report submitted to Frome-Broken Hill Co. Pty. Ltd., 27/7/64.
- Evans, P. R. 1963 The Microflora of F.B.H. Pretty Hill No. 1 and F.B.H. Eumeralla No. 1 Wells, Victoria. Bur. Min. Resour. Aust. Rec. 1963/53. (Unpublished)

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