INTRODUCTION

F.B.H. Pretty Hill No.1 Well was drilled by Frome-Broken Hill Co. Pty Ltd into the Tyrendarra Embayment of the Otway Basin at Long. 142° 07' 30" E; Lat. 38° 13' 30" S. to a total depth of 8124 feet during the period September - October 1962 (Bain, 1962). The well entered (?) Cambrian diabase at 7874 feet after penetrating a Tertiary and Cretaceous section. It entered a "basal sandstone" at 5964 feet with porosity and permeability values such as to warrant consideration of the formation as a potential reservoir. The company then drilled F.B.H. Eumeralla No.1 about 10 miles to the west of the Pretty Hill No.1 to test the extend of the "basal sandstone". Eumeralla No.1 was sited at Long. 141° 56' 01" E; Lat. 38° 12' 43" S. and was drilled to a total depth of 10,308 feet without encountering basement.

Palynological observations were made in the Bureau of Mineral Resources on Pretty Hill No.1 in November 1962, initially to determine the age of the "basal sandstone". Observations were later made on cores from the Tertiary and Upper Cretaceous horizons of the well. The results of this examination appear in Appendix 2 of Bain (1962).

Samples of thirteen cores from Eumeralla No.1 were examined in March 1963 to compare the Eumeralla section with that encountered in Pretty Hill No.1. Results of that examination will appear in the Eumeralla No.1 Well Completion Report.

The object of this paper is to compile the data on the Lower Cretaceous sections of these wells and to compare them with ones obtained from the Lower Cretaceous of other sections in the Otway Basin. Comments on the Upper Cretaceous of Pretty Hill No.1 are not included. The author's conclusions on that horizon presented in Bain (1962) should be considered in the light of evidence recorded by Douglas in the same report.

MATERIAL EXAMINED

Pretty Hill No.1

Merino Group.	Core 16,	5954 - 5957 feet.
"Basal sandstone".	*Core 19,	6696 - 6697½ feet.
" "	*Core 20,	7200 - 7214 feet.

Cores 17 (6070 - 6080 feet) to 21 (7585 - 7597 feet) were cut from the "basal sandstone". Only samples from cores 19 and 20 were processed as the available cuts from the other three cores were of porous sandstone that probably contains a very low spore content and that in any case might have been invaded by contaminating drilling mud. The sample taken from core 19 included a thin lamination of coaly matter. That from core 20 consisted of a very thin lamination of grey silty sandstone.

TABLE II THE MICROFLORA OF CORES 19, 20 FROM F.B.H. PRETTY HILL NO.1

Core 19 (6696 - 6697 ft. 6 in.) included a thin (¼ inch) lamination of coaly matter. Maceration of this material yielded vegetable tissue and extremely few spores. Lycopodiumsporites circolumenus and Leptolepidites verrucatus were recognized among them.

Core 20 (7200 - 7214 feet: precise interval not determinable) was also of sandstone, but included a very thin lamination of grey silty sandstone. This lamination yielded a moderate number of well preserved spores. They included:

Cyathidites spp. incl. C. australis rimalis
Dictyotosporites speciosus } 1 specimen of each
Lycopodiumsporites circolumenus
Cyclosporites hughesi
Aequitriradites tilchaensis
Disaccites spp. (common)
"Inaperturopollenites" spp. (fairly common).

TABLE I: DISTRIBUTION OF SELECTED MICROFLORAL SPECIES IN F.B.H. EUMERALLA NO.1

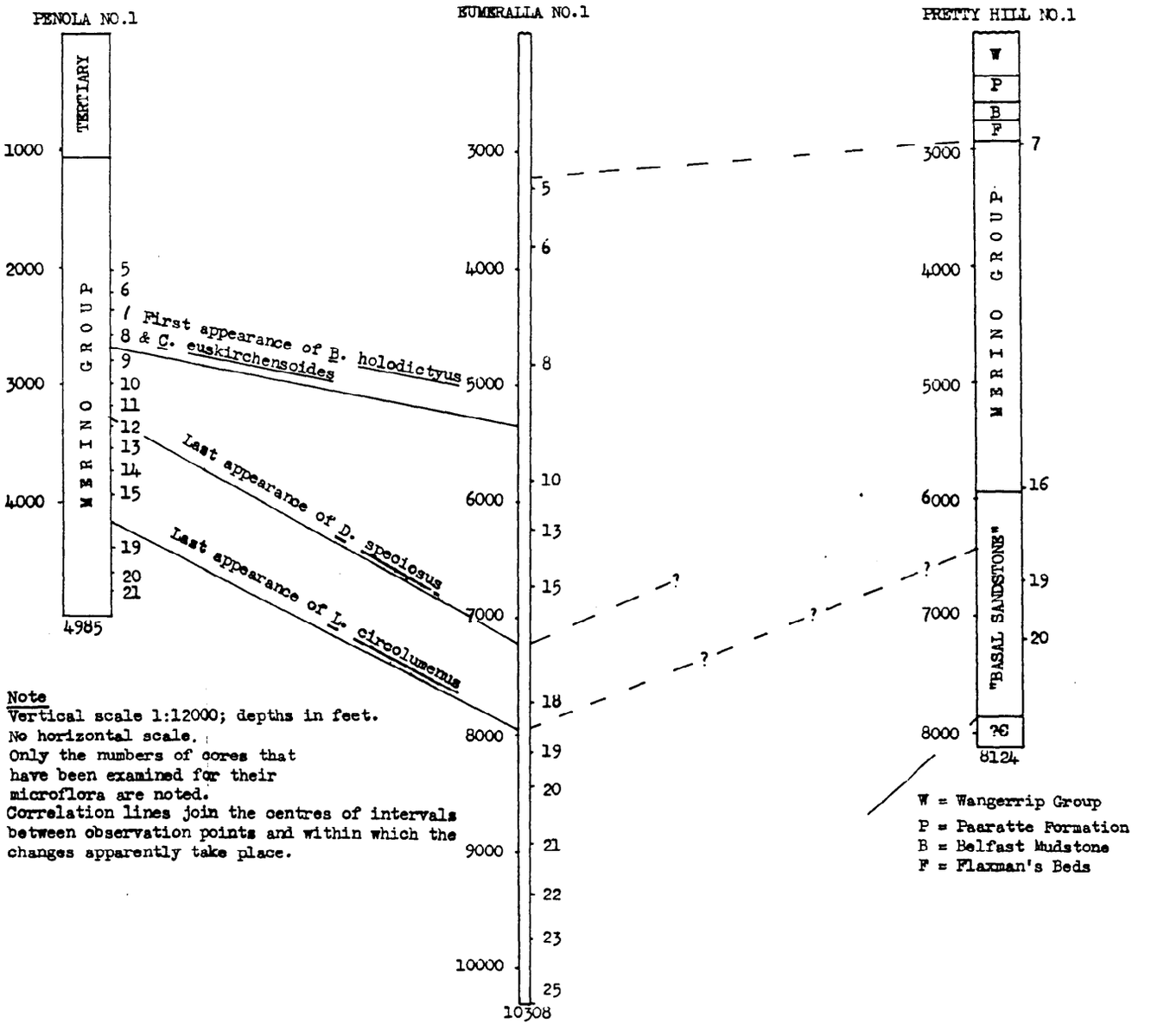
DISTRIBUTION OF SELECTED SPECIES

● - species present.
C - species common.
x - species cf.

SAMPLE	c.5 3313-15	c.6 3806-08	c.8 4812-14	c.10 5803-05	c.13 6254-57	c.15 6716-18	c.18 7712-14	c.19 8151-2½	c.20 8458-61	c.21 8916-18	c.22 9379-81	c.23 9767-69	c.25 10302-5
MICROSPORES													
1 Trilobosporites trioreticulosus	●												
2 Cyathidites sp. (small variety)	●												
3 Pilosisporites sp.		●											
4 Perotrilites striatus *Crybelosporites*		●	●										
5 Balmeisporites holodictyus			●										
6 Cingulatisporites euskirchensoides *Rouseisporites radiatus*			●										
7 Vitreisporites pallidus		●	●		●								
8 Microcachryidites antarcticus		●	●			●							
9 Apiculatisporis assymetricus *Foraminisporis*						●	●						
10 Sphagnumsporites spp.	●	●			●	●		●					
11 Aequitriradites tilchaensis								●					
12 Schizosporis reticulatus								●					
13 Granulatisporites dailyi *Foraminisporis*								●					
14 Aequitriradites spinulosus								●					
15 Ceratosporites equalis								●					
16 Cyclosporites hughesi								●	●				
17 Ischyosporites punctatus									●				
18 "Pityosporites" grandis *Alisporites*		●				●				●			
19 Apiculatisporis wonthaggiensis *Foraminisporis*			●		●					●			
20 Ischyosporites scaberis						●				●			
21 Dictyotosporites complex						●		●	●	●			
22 Pilosisporites notensis								●	●	●			
23 Lycopodiumsporites circolumenus								●		●			
24 Lycopodiumsporites rosewoodensis								●		●			
25 Callialasporites dampieri										●			
26 Aequitriradites verrucosus	●				●					x		●	
27 Cicatricosisporites cooksonii		●						●				●	
28 Classopollis sp.		●	●	●			●		●			●	
29 Neoraistrickia truncatus			●				●	●		●		●	
30 Cicatricosisporites dorogensis	●		●		C	●	●	●		●			●
31 Cyathidites australis		●	C	C	●	●	●	●		●		●	●
32 Leptolepidites verrucatus		●			●		●	●	●	●		●	●
33 Baculatisporites comaumensis		●	●			●		●					●
34 Lycopodiumsporites austroclavatidites		●	●		●	●		●					●
35 "Ginkocycadophytus" nitidus			●					●		●		●	●
36 Dictyotosporites speciosus							●					●	●
MICROPLANKTON													
37 Micrhystridium sp.	●		●										
38 Cymatiosphaera sp.				●									

FIGURE 1.

TENTATIVE MICROFLORAL CORRELATION OF THREE SECTIONS THROUGH THE MERINO GROUP OF THE OTWAY BASIN.



Note
Vertical scale 1:12000; depths in feet.
No horizontal scale.
Only the numbers of cores that have been examined for their microflora are noted.
Correlation lines join the centres of intervals between observation points and within which the changes apparently take place.