DETTMANN

PALYNOLOGICAL EXAMINATION OF ROSEDALE, DARRIMAN, AND TARWIN MEADOWS WELLS

Samples of 19 cores were submitted for palynological examination by Haematite Explorations Pty. Ltd. from three wells sunk in eastern Victoria. The wells and the intervals examined include: Rosedale well between 2469 and 5336 feet, Darriman well between 4309 and 4475 feet, and Tarwin Meadows well between 504 and 2572 feet. The majority of the samples yielded identifiable spores and pollen grains, but the microfloras are generally poorly preserved. Moreover, the plant matter contained in samples from between 5243 and 5336 feet in Rosedale well has been carbonized such that identifiable spores and pollen grains appear to be lacking. As outlined below the productive samples contain microfloras that conform with the Lower Cretaceous assemblages described by Dettmann (1963) from south-eastern Australia. The presence of these microfloras enables correlation of the well sequences both with each other and with Lower Cretaceous sediments at other localities in Gippsland. Details of the microfloral sequence in each of the wells follows (see also Table 1).

Rosedale well

Samples from the lower part (5243 - 5335 feet) of the sequence failed to produce identifiable spores and pollen grains and thus no age assessment can be made on palynological grounds. Sediments between 4747 and 5065 feet yielded only a few poorly preserved spores and pollen grains that signify an Upper Mesozoic age, but possess little stratigraphical value within the Upper Mesozoic.

More diverse and better preserved microfloras were obtained from the remainder of the sequence (between 2469 and 4496 feet). Samples between 3447 and 4496 feet yielded Dictyotosporites speciosus Cookson & Dettmann in association

DETTMANN 2/4

with Cyclosporites hughesi (Cookson & Dettmann). The combined occurrence of these species indicates the presence of the older category of the Valanginian-Aptian Speciosus Assemblage that was described by Dettmann (1965). Comparable microfloras were obtained in Wellington Park No.1 well between 6845 and 9019 feet (Dettmann 1965).

The two uppermost samples (2469-83 feet and 3208-28 feet) are also of Valanginian-Aptian age since Dictyotosporites speciosus occurs at 2469-83 feet. However, neither Cyclosporites hughesi nor Crybelosporites striatus (Cookson & Dettmann) was observed and there is thus insufficient evidence to determine whether the microflora belongs to the older or younger categories of the Speciosus Assemblage. Although no precise correlation can be achieved, the horizons between 2469 and 3228 feet in Rosedale well can be regarded as equivalents of at least part of the sequence between 5813 and 9019 feet in Wellington Park No.1 well.

Darriman well

Neither of the two samples examined provided abundant microfloras. That obtained from 4474-75 feet includes Crybelosporites striatus and Coptospora striata Dettmann which indicate the presence of either the younger (Aptian) category of the Speciosus Assemblage or the Aptian-Albian Paradoxa Assemblage. It should be noted that Coptospora striata possesses a restricted stratigraphical range in sediments of the Otway Basin where it extends from the uppermost horizons containing the Speciosus Assemblage to the lowermost beds that have yielded the Paradoxa Assemblage. This evidence indicates that the deposits at 4474-75 feet in Darriman well are similar in age or younger than those between 5813 and 4340 feet in Wellington Park No1 well.

The sample from 4309-10 feet provided only a few spores and pollen grains

DETTMANN 3/4

that are of little stratigraphical significance within the Upper Mesozoic.

Tarwin Meadows well

Samples from between 600 and 2572 feet yielded restricted microfloras in which Dictyotosporites speciosus is a component. Thus, the Valanginian-Aptian Speciosus Assemblage is represented at these horizons. Beds at [illegible]-72 feet also yielded Cooksonites variabilis Pocock which indicates the presence of the older category of the Speciosus Assemblage and suggests correlation of the beds with those at 6845 feet in Wellington Park No.1 well and at 5977 feet in Bengworden South No.1 well (see Dettmann 1965).

The succeeding horizons (600-1610 feet) that contain Dictyotosporites speciosus are probable equivalents of at least part of the sequence between 3818 and 6845 feet in Wellington Park No.1 well, but the absence of Cyclosporites hughesi and Crybelosporites striatus within the Tarwin Meadows interval precludes precise correlation.

The uppermost horizon (304-14 feet) lacked diagnostic species of the Speciosus and Paradoxa Assemblages. However, the presence of Pilosisporites notensis Cookson & Dettmann indicates an age no younger than Aptian.

References

Dettmann, M.E. 1963. Upper Mesozoic microfloras from south-eastern Australia. Proc. Roy. Soc. Vict., 77, 1-148.

Dettmann, M.E. 1965. Palynological report on Woodside Wellington Park No.1 well. Unpublished report submitted to Haematite Explorations Pty. Ltd. 9/8/65.

4th November, 1965.

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

DETTMANN

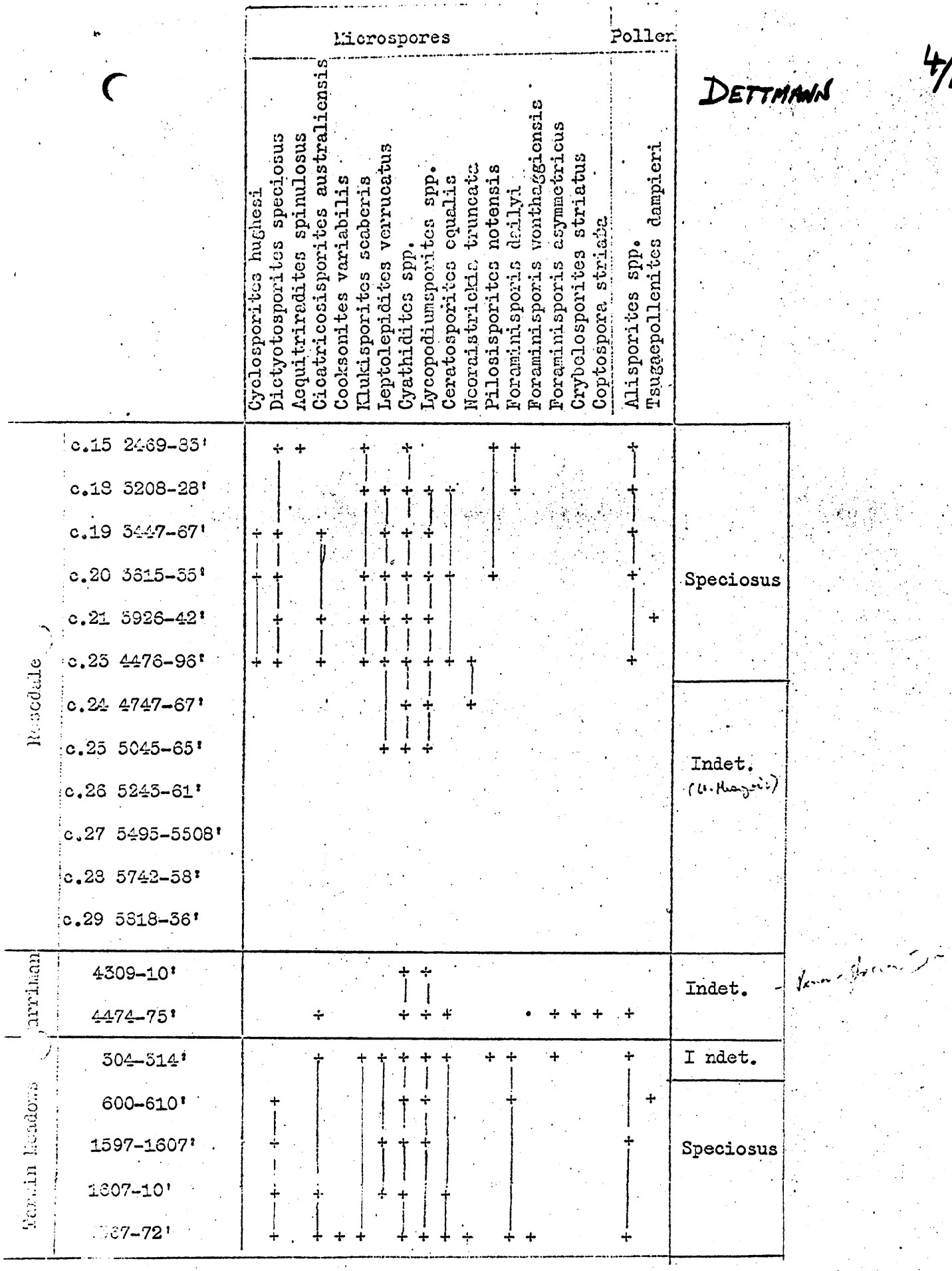

Table 1: Distribution of selected spore and pollen species from Rosedale, Darriman, and Tarwin Meadows wells.

+ - species present