



PE990037

Core samples from Golden Beach West No.1 and Merriman No.1 wells provided palynological evidence for the existence of Tertiary and Cretaceous sediments within the two wells. In Golden Beach West No.1 well, Tertiary microfloras were extracted from samples at 5076-91 feet and 5415-25 feet, whereas microfloras in samples from 6380-96 feet and 6840-60 feet demonstrate that horizons at these levels are Cretaceous in age. The lowest core (7100-12 feet) examined from the Golden Beach West No.1 well was found to be devoid of plant microfossils.

A well preserved Lower Tertiary microflora was extracted from Merriman No.1 well at 4705-22 feet. Samples lower in the sequence (between 5070 and 6005 feet) yielded meagre microfloras that indicate a Cretaceous age.

Details of the microfloras obtained from each of the samples investigated are presented below (see also Table 1).

#### Golden Beach West No.1 Well

The lowest sample examined (7100-112 feet) was found to be devoid of plant microfossils. The succeeding cores from 6340-60 feet and 6380-96 feet contain poorly preserved microfloras in which Cicatricosisporites australiensis (Cookson) is present. This species indicates a Cretaceous age. The sample from 6380-96 feet also yielded Crybelosporites striatus (Cookson & Dettmann) and triplicate angiosperm grains; the former species confirms a Cretaceous age, and the angiosperm grains suggest an horizon within the Upper Cretaceous.

Fairly well preserved microfloras containing a high proportion of angiosperm grains were extracted from sediments at 5415-25 feet and at 5076-91 feet. The lower sample yielded Triorites edwardsii Cookson & Pike, the index of Harris's (1965) Triorites edwardsii and Triorites edwardsii - Duplo-

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Duplopollis orthoteichus Assemblages. However, reference of the microflora at 5415-25 feet to one or other of the above-named assemblages is precluded by the absence of other diagnostic species. Nevertheless, the presence of T. edwardsii indicates a Tertiary (Paleocene) or, at the oldest, an uppermost Cretaceous age (see Harris 1965, Evans 1962) and suggest correlation with beds between 8356 and 9514 feet in Gippsland Shelf No.3 well and at 8695 feet in Gippsland Shelf No.1 well (Dettmann 1965).

The sample from 5076-91 feet yielded a distinctly younger microflora containing Beaupreadites verrucosus Cookson, Nothofagidites falcata Cookson, and N. vansteenisii Cookson. B. verrucosus occurs in microfloras which Harris (1965, p.99) considers to be younger than his Duplopollis orthoteichus Assemblage of Upper Paleocene age. Cookson (1950, 1954) suggests an Eocene or younger age for B. verrucos<sup>us</sup> and indicates (1959) an Eocene - Lower Miocene age range for the two representatives of Nothofagidites. On this basis, the microflora can be regarded as Eocene to Lower Miocene in age.

#### Merriman No.1 well

Core 6 from 5990-6005 feet provided a sparse and poorly preserved microflora in which Alisporites grandis (Cookson) is the only stratigraphically significant species. This form is known only from the Cretaceous, being more common in Lower Cretaceous sediments. The succeeding sample from 5475-88 feet yielded a meagre microflora in which no stratigraphically significant species were observed.

Core 4 from 5070-81 feet also yielded a meagre microflora, but the presence of Balmesporites glenelgensis Cookson & Dettmann indicates an Upper Cretaceous (Cenomanian to Turonian) age. Several examples of remanié fossils referable to the Permian spore genus Nuskoisporites were also observed.

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Fair concentrations of well preserved spores and pollen grains were recovered from the <sup>Core No 3</sup> sample at 4705-22 feet. Species present include Cyathidites splendens Harris, Triorites edwardsii, Tricolpites gillii Cookson, and Phyllocladidites mawsonii Cookson. These species indicate conformity of the microflora with either the T. edwardsii or T. edwardsii - D. orthoteichus assemblages. T. edwardsii suggests a Lower Tertiary (Paleocene) or uppermost Cretaceous age and demonstrates that the beds at 4705-22 feet in Merriman No.1 well are probable equivalents of those at 5415-25 feet in Golden Beach West No.1 well.

References

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18th February, 1966.

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