stone, calcareous mudstone, and dolomitic limestone. In the basin there is a thick subsurface section of earlier Tertiary sedimentary rock, whereas in the surface exposures the Etadunna is dissected in places by the fossiliferous Mampuwordu Sands (? Pliocene), which in turn are truncated by the unfossiliferous red beds of the Tirari Formation. Cutting deeply into the Tirari are the fluviatile fossiliferous Katipiri Sands (Pleistocene).

Ngapakaldi fauna. MOLLUSCA: gastropods. ANTHROPODA: ostracodes. OSTEICHTHYES: lung fish, teleosts. REPTILIA: chelonians—including a ? meiolanid, crocodileans, varanid lizards. AVES: pelicans, flamingos, ducks, cranes, thick-knees, and a gull or tern. MARSUPIALIA: two dasyurids, *Perikoala*, rat-kangaroo, a primitive kangaroo, thylacoleo-like animal and a primitive diprotodontid.

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COMPARISON OF THREE CRETACEOUS SPORE-POLLEN ASSEMBLAGES FROM MARYLAND AND ENGLAND

Comparative studies of dispersed spores and pollen from the Upper Cretaceous Magothy Formation and the Lower Cretaceous Arundel Formation, both in Maryland, and the Lower Cretaceous Wealdian sequence in southern England reveal striking similarities and differences among the dominant species. The two Lower Cretaceous assemblages consist almost exclusively of fern spores and gymnosperm pollen. Of the thirteen most abundantly occurring fern spore species in the Arundel association, ten are conspecific with species in the Wealdian one. In spite of the wide geographic separation of the two assemblages, only four of the dominant species reported from the Wealdian were not observed in the Arundel microflora.

A much greater difference is evidenced in comparing the Upper and Lower Cretaceous assemblages from Maryland, each of which contains a distinctive and diagnostic microflora. Of the twenty-five most abundant fern spore and angiosperm pollen species (thirteen from the Arundel, twelve from the Magothy), only one is common to both. An even more obvious difference is the fact that no angiosperm pollen were observed in the Arundel. However, in the Magothy angiosperm pollen constitute approximately forty per cent of the dominant species. Furthermore, the Magothy assemblage, in general, is characterized by species whose morphology is more complex and more advanced than that shown by the forms in the Arundel.

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DOLOMITE IN MODERN CARBONATE SEDIMENTS, SOUTHERN FLORIDA

The western margin of Florida Bay contains extensive shallow-water banks of unconsolidated, fine carbonate mud. The banks are separated by narrow tide channels and rest on hard Pleistocene bedrock. The banks attain a maximum thickness of about 4½ feet. Radiocarbon dates show that they have been formed in the past 4,000 years. The carbonate mud is composed principally of aragonite, with lesser proportions of dolomite and both high- and low-magnesium calcite. The proportion of dolomite varies, ranging up to about 5 per cent by weight of the total carbonate. Other constituents are quartz and opaline sponge spicules, but these rarely form more than 1 or 2 per cent.

Dolomite crystals are euhedral rhombohedrons varying in size from less than 1 micron to approximately 60 microns. They commonly have dark internal rhombohedrons that appear to be intergrowths of dolomite and organic materials. Complex clusters of interpenetrating rhombohedrons are present, but are rare.

The occurrence of interpenetrating rhombohedrons and intergrowths of organic and carbonate material suggests that dolomite has been formed *in situ* in Florida Bay; however, radiocarbon dating shows that the dolomite is older than 35,000 years and must be detrital.

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SEDIMENTARY BASINS AND OIL DEVELOPMENTS IN INDONESIA

In spite of retarded developments of the oil potentials in Indonesia since World War II, the Indonesian Archipelago ranks as ninth in the list of world crude production. Aside from the known oil fields in Borneo (Kalimantan), Sumatra, Java, and West-Irian (New Guinea), great possibilities exist to further develop the oil potentials of the sedimentary basins of Indonesia provided that the Indonesian Government grants liberal terms and attractive conditions for existing and new concessions to private oil companies.

This summary of the stratigraphy, structure, and oil potentials of the Tertiary basins of Indonesia is based mainly on available literature (E. W. Beltz, H. M. Schuppli, G. F. Kaufmann, J. Weeda, J. H. L. Wennekers, and others) and to a smaller degree on personal experience.

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SACRAMENTO AND NORTHERN SAN JOAQUIN VALLEY GAS AREAS

The Sacramento and Northern San Joaquin Valleys are now a major dry gas province, there being about 65 dry gas fields from Fresno on the south to Redding in the north, a distance of approximately 300 miles. The Sacramento and Northern San Joaquin Valleys are a southeasterly plunging synclinorium bounded on the east by the Sierra Nevada and on the west by the Coast Ranges. This sedimentary trough is asymmetrical, the west flank steeper than the east. The stratigraphic section from Cretaceous through Recent represents a composite thickness of approximately 50,000 feet. Because of tilting and subsequent truncation, the stratigraphic section of the Sacramento Valley becomes successively younger in a southerly direction. Stratigraphic traps formed by the truncation of the southerly plunging section are economically significant. The configuration of the resultant edge lines takes parabolic form with its apex at the north. Three unique detritus-filled erosional gorges transect the Sacramento Valley within the subsurface.

The synclinorium is broken by several northeasterly trending subsurface anomalies: the Red Bluff arch, the Marysville-Colusa arch, the Sacramento hinge-line, and the Stockton fault which structurally separates the Sacramento Valley from the San Joaquin Valley. The Marysville Buttes, Dunningan Hills, Kirby, and Potrero Hills are several prominent topographic features closely associated with gas accumulation.

In general, the Sacramento Valley gas production is separated on the basis of stratigraphy into two parts by the Sacramento hinge-line. The Rio Vista basin,