DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

Rept. Bk. No. 815
PALYNOLOGY OF SELECTED SAMPLES FROM DRILLING BY SAMEDAN OF AUSTRALIA.
E.L. 693

By

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Biost. No. 5/80
D.M.E. No. E.L. 693
Env. No. 3293

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E.L. 693 is situated near Bulgunnia in the northeast corner of the TARCOOLA (1:250 000) sheet. Geologically the area includes the northern margin of the Gawler Craton and the southern extremities of the Great Australian Basin.

Cores from two drillholes were provided for palynological examination. Age and correlation were requested.

Five samples were selected and processed by standard palynological techniques. Two of these produced prolific miospores having excellent preservation. These samples provide the determinations made in this report.

BULGUNNIA BORE BDH 1

SADME Sample Number: S 5008, prepared 21/7/1980

Depth: 102.86-102.90 m

Lithology: Dark grey-black, carbonaceous and micaceous siltstone.

Age: Early Permian (Stage 3, probably Stage 3a of Evans, 1969; Price 1976).

Flora: Miospores recognised include:-

Cycadopites cymbatus

Gondisporites parvus

G. splendens

Microbaculispora mediogranulata

M. micronodosa

Microbaculispora tentula

Parasaccites gondwanensis

Pityosporites ovatus

Punctatisporites gretensis

Zinjisporites spinosus

The following acritarch was also determined.

Mehlisphaeridium irregulare

Correlation: Biostratigraphically, this sample correlates with the top half of the Stuart Range Formation and the Mount Toondina Formation in the Arckaringa Basin. Lithologically, correlation is suggested with the Mount Toondina Formation. Correlation with the Purni and Patchawarra Formations is indicated in the Pedirka and Cooper Basins respectively.

BULGUNNIA BORE BDH 2

SADME Sample Number: S 5003, prepared 16/7/1980.

Depth: 52.91-52.95

Lithology: Green-grey micaceous, carbonaceous siltstone; fossil leaf material evident on bedding laminae.

Age: Early Permian (Stage 3, probably Stage 3b of Evans, 1969; Price, 1976).

Flora: Miospores recognised include:-

Acanthotriletes sp.

Apiculatisporis levis

Cycadopites cymbatus

Gondisporites splendens

Marsupipollenites triradiata

Microbaculispora mediogranulata

M. micronodosa

M. tentula

M. trisina

Correlation: This sample is from equivalents of the upper half of the Stuart Range Formation and Mount Toondina Formation similar to S 5008.

CONCLUDING REMARKS

Both samples examined palynologically from the Bulgunnia area have an age similar to that known for the Early Permian Lake Phillipson coal deposits within the Mount Toondina Formation of the Arckaringa Basin, located about 80 km north of this area.

Sample S 5008 from BDH 1 is probably slightly older than S 5003 (BDH 2), a fact based on the recognition of *Microbaculispora trisina* in BDH 2.

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