DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

REPT.BK.NO. 86/20
PRELIMINARY PALYNOSTRATIGRAPHY OF SADME FINNISS 2 WELL, SOUTHWESTERN EROMANGA BASIN

GEOLOGICAL SURVEY

by

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BIOSTRATIGRAPHY

JULY, 1986

DME.97/83

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SOUTH AUSTRALIA

REPT BK NO. 86/20
BIOSTRAT. NO. 1/86
DME NO.
DISK NO. 172

PALYNOSTRATIGRAPHY OF SADME FINNISS 2 WELL, SOUTHWESTERN EROMANGA BASIN

ABSTRACT

The *Cyclosporites hughesii* spore/pollen subzone and its correlative *Odontochitina operculata* dinoflagellate zone have been recognized in palynological assemblages from Bulldog Shale in SADME Finniss 2 Well. Palynological evidence shows that only the middle Aptian interval of Bulldog Shale is present and that further suggests a local hiatus equivalent to *Odontochitina operculata* subzone b may occur in this interval.

INTRODUCTION

SADME Finniss 2 Well was drilled in 1985, approximately 5 km west of the abandoned Alberrie Creek railway station (Fig. 1), to assess the stratigraphy of the Early Cretaceous sequence in that part of the Eromanga Basin. It was drilled to 106.57 m with the upper 3 m being by rotary drilling (cuttings samples) and the remainder by rotary coring. Lithological evidence (B.G. Forbes, SADME, personal communication, Jan. 1986) indicated that the intercalated, fossiliferous mudstones, sandstones and concretionary limestones between 3.12 m and 93.93 m are Bulldog Shale, the pebbly mudstones and minor sandstones between 93.93 m and 104.39 m are possibly Wilpoorinna Breccia Member, and the marble below 104.39 m is Myrtle Springs Formation (Fig. 2), or another Adelaidean Unit.

In August 1985, 10 samples were collected between 15.3 m and 104.0 m by B.G. Forbes (Regional Geology Branch) for palynological examination to determine ages for the lithostratigraphic units.

PROCEDURES

Samples were processed using standard laboratory procedures: crushing, boiling in conc. HCl followed by conc. HF, heavy liquid separation, oxidization in Schulze Solution, a brief wash in 1-5% K_2CO_3 solution and mounting the plant microfossils in glycerine jelly.

Microscope analyses were undertaken with a Zeiss Photomicroscope III. A count of at least 300 palynomorphs was attempted for each sample to determine the relative frequency of pollen and spores (Appendix 1). The preservation and yield of palynomorphs from each sample were variable, ranging from poor to good. Preservation was so poor in three samples (Appendix 1) that counting was not feasible. Extensive scanning of all microscope slides followed the counting to record the less common to rare palynomorphs.

PALYNOLOGY

Miospore Assemblages : Composition and Correlation

The percentage frequency of spores and pollen in the palynomorph assemblages is high, varying from 80% to as high as 99% in two samples (Appendix 1). Spores (particularly of the pteridophytes) are most common in the assemblages, and include *Cyathidites minor* (X-19%), *C. australis* (X-11%), *Baculatisporites comaumensis* (X-14%), *Ceratosporites equalis* (O-8%), *Stereisporites antiquasporites* (X-10%), *Osmundacidites wellmanii* (O-6%) and *Retitriletes austroclavatidites* (O-8%). A few other spores are common in the three samples from the Wilpoorinna Breccia including *Cyathidites asper* (O-8%), *Gleicheniidites circinidites* (X-5%) and *Cicatricosisporites australiensis* (X-3%). Pollen is dominated by the conifers *Podocarpidites ellipticus* (X-21%), *Microcachryidites antarcticus* (X-14%), *Alisporites grandis* (X-7%), *A. similis* (X-7%), *Araucariacites australis* (O-5%) and *Classopolis chateaunovi* (X-4%).

The presence of *Dictyotosporites speciosus*, *Cyclosporites hughesii*, *Cooksonites variabilis*, *Murospora florida*, *Biretisporites spectabilis*, *Kraeuselisporites linearis*, *Contignisporites cooksoniae* and *Foraminisporis asymmetricus* in the absence of *Crybelosporites striatus* indicates the assemblages are correlative with the *Cyclosporites hughesii* spore/pollen subzone of Dettmann and Playford (1969; see Figure 3). A recent revision of Cretaceous spore/pollen zones (Price et al., 1985) employs the first appearance of *Pilosisporites parvispinosus* to define the base of the PK3.2 zone, which is approximately coincident with the middle *Cyclosporites hughesii* subzone (Fig. 3). In Finniss 2 *P. parvispinosus* first occurs at 103.27 m, or virtually the base of the Bulldog Shale encountered in the well. This implies that the lower part of the *Cyclosporites hughesii* subzone is absent in Finnis 2, which is confirmed by the dinoflagellate evidence.

Dinoflagellate Assemblages : Composition and Correlation

In general, species diversity and percentage frequency in the total assemblages are low, although significant increases occur at 68.58 m and 79.44 m (Appendix 1). Only *Canningia* sp. A at 68.58 m and *Lithodinia helbyi* at 79.44 m form a significant part of the microplankton assemblages.

The presence of *Odontochitina operculata* and the absence of *Pseudoceratium turneri* indicate that the microplankton assemblages are correlative with the *Odontochitina operculata* Zone (Figure 3). Morgan (1980a) subdivides this zone into three subzones, but only subzone a (upper part) and subzone c two can be clearly recognized in Finniss 2. Subzone b can not be recognized with certainty and is thus regarded as being absent (see below).

Subzone a (97.37 m - 104 m)

The upper boundary of this subzone is defined by the younger occurrence of *Aptea attadalica*, which in Finniss 2 occurs at 97.37 m, although it may also occur in the unsampled interval between 79.44 m and 97.37 m. *Muderongia mcwhaei* is also found to be common in the subzone, as is the case at 103.27 m and 104 m. However, *Canningia* sp. A and *Lithodinia helbyi* are found in the lowest sample and since these normally have their occurrences at or near the top of the *Odontochitina operculata* subzone a, then it is possible that only the uppermost part of the subzone is present. The absence of the larger part of subzone a is also recognized in SADME Toodla 1 Well (Alley, 1985).

The absence of subzone b is based on the following evidence. The oldest occurrence of *Diconodinium davidii* is at 68.58 m the species which is used to define the upper boundary of subzone b (Morgan, 1980a). *Heslertonia striata* and *Stephodinium diannae* are present as low as 79.44 m, and the oldest occurrences of these two species are at or near the top of subzone b (Morgan, 1980a). However, the oldest occurrence of *Leptodinium asymmetricum* is also believed to be in the same position, but in Finniss 2 is found at 97.37 m. Thus, in this report subzone b is regarded as being absent and the sample interval 79.44 m is included in subzone c.

Subzone c (15.3 m - 79.4 m)

As noted above, the base of this subzone is normally defined on the basis of the oldest occurrence of *Diconodinium davidii*, which is found at 68.58 m. However, based on the discussion above of the ranges of species, the sample at 79.4 m is also included in subzone c. The incoming of *Pseudoceratium turneri* marks the upper boundary of the subzone in the zonal scheme of Morgan (1980a), but in Finniss 2 the species is not present. Thus, the position of the upper boundary in the well is unknown.

CONCLUSIONS

The ages of the palynostratigraphic units encountered in Finniss 2 Well are shown in Figure 4, and the correlation between these and the lithostratigraphic units in Figure 5.

The interval of Bulldog Shale and its possible Wilpoorinna Breccia Member in Finniss 2 is of middle Aptian age (Fig. 5). Spore/pollen and dinoflagellate evidence indicate that the early Aptian interval of Bulldog Shale that is normally present elsewhere in the Eromanga Basin is absent at this site (Fig. 5). *Odontochitina operculata* subzone b is missing and a local hiatus may occur in the middle Aptian in this part of the Eromanga Basin.

ACKNOWLEDGEMENTS

J.M. Lindsay, B.G. Forbes, W.K. Harris and C.B. Foster reviewed the report.

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February 1986

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REFERENCES

Alley, N.F., 1985. Preliminary report on the palynostratigraphy of SADME Toodla No. 1 Well southwestern Eromanga Basin. S. Aust. Dept Mines and Energy report 85/55 (unpublished).

Dettmann, M.E. and Playford, G., 1969. Palynology of the Australian Cretaceous: A review. In: Campbell, K.S.W. (Ed.), Stratigraphy and Palaeontology. Essays in Honour of Dorothy Hill. A.N.U. Press, Canberra, pp. 174-210.

Dettmann, M.E. and Williams, A.J. 1985. The Cretaceous of the southern Eromanga Basin - a palynological review. Delhi Petroleum Pty. Ltd., Palynological Report No. 274/25 (unpublished).

Morgan, R., 1980a. Palynostratigraphy of the Australian Early and Middle Cretaceous. Mem. geol. Surv. N.S.W., Palaeontology, 18.

Morgan, R., 1980b. Eustasy in the Australian Early and Middle Cretaceous. Bull. geol. Surv. N.S.W., 27.

Price, P.L., Filatoff, J., Williams, A.J., Pickering, S.A. and Wood, G.R., 1985. Late Palaeozoic and Mesozoic palynostratigraphical units. C.S.R., Oil and Gas Division, Report No. 274/25 (unpublished).

APPENDIX 1

LIST AND FREQUENCY OF PALYNOMORPHS

ENCOUNTERED IN FINNISS 2 WELL

Palynological Number	S6118	S6119	S6117	S6114	S6115	S6113	S6116	S6110	S6111	S6112
Depth	15·3	23·12	30·75	41·07	53·12	68·58	79·44	97·37	103·27	104·00
X indicates occurrences less than 1%	1	2	3	4	5	6	7	8	9	10
<u>PRESERVATION:</u> Good-G, Fair-F, Poor-P	P	P	P	P	P	G	G	P	F	F
<u>YIELD:</u> Good-G, Fair-F, Poor-P	P	P	P	P	P	G	G	P	F	F
<u>PERCENTAGE FREQUENCY IN ASSEMBLAGE:</u>										
Pollen and spores	98	99	-	99	-	80	88	-	92	91
Dinoflagellates and acritarchs	2	1	-	1	-	20	12	-	8	9
<u>POLLEN AND SPORES</u>										
Aequitriradites spinulosus (Cookson & Dettmann) Cookson & Dettmann 1961	-	X	-	-	-	-	-	-	-	X
A. verrucosus (Cookson & Dettmann) Cookson & Dettmann 1961	-	-	-	X	-	X	X	-	X	X
Alisporites grandis (Cookson) Dettmann 1963	4	2	X	7	X	3	3	X	6	2
A. lowoodensis de Jersey 1963	X	-	-	-	-	-	-	-	-	-
A. similis (Balme) Dettmann 1963	7	4	X	X	X	2	1	X	X	-
Anapiculatisporites pristidentatus Reiser & Williams 1969	-	-	-	-	X	-	-	-	-	-
Annulispora folliculosa (Rogalska) de Jersey 1959	X	-	-	X	X	X	X	X	X	-
Araucariacites australis Cookson 1947	2	4	-	1	-	3	X	-	5	5
Baculatisporites comaumensis (Cookson) Potonié 1956	7	6	X	12	X	14	13	X	8	6
Biretisporites potoniaeii Delcourt & Sprumont 1955	-	-	-	-	-	-	-	-	2	-
B. spectabilis Dettmann 1963	-	X	-	-	-	-	X	-	2	X
Cadargasporites reticulatus de Jersey & Paten 1964	-	-	-	-	-	-	-	-	-	X
Callialasporites dampierii (Balme) Sukh Dev 1961	X	-	-	X	-	-	-	-	X	X
C. segmentatus (Balme) Srivastava 1963	X	-	-	X	-	X	-	-	2	X
C. trilobatus (Balme) Sukh Dev 1961	X	-	-	-	-	-	-	-	-	-
C. turbatus (Balme) Schulz 1967	-	-	-	-	-	-	-	-	X	-
Camarozonosporites clivosus (Williams & McKellar) McKellar 1974	-	-	-	-	-	X	X	X	-	-
C. ramosus (de Jersey) McKellar 1974 et. emend.	X	-	-	-	-	-	-	-	-	X
Ceratosporites equalis Cookson & Dettmann 1958	X	6	X	8	X	X	3	X	X	X
Cibotiumspora juriensis (Balme) Filatoff 1975	-	-	-	-	-	-	-	-	X	-

	1	2	3	4	5	6	7	8	9	10
Cicatricosisporites australiensis (Cookson) Potonié 1956	X	X	X	X	X	X	1	X	3	3
C. ludbrookiae Dettmann 1963	X	X	X	–	–	–	–	X	X	X
C. pseudotripartitus (Bolkhovitina) Dettmann 1963	–	–	–	–	–	–	–	–	X	X
Classopolis chateaunovi Reyre 1953	X	X	X	1	X	2	3	X	4	X
C. simplex (Danzé-Corsin & Laveine) Reiser and Williams 1969	X	X	–	X	X	X	X	X	X	X
Concavissimisporites penolaensis Dettmann 1963	–	–	–	–	–	–	–	–	–	X
C. verrucosus Delcourt & Sprumont 1955 emend. Delcourt, Dettmann & Hughes 1963	–	–	–	–	–	–	–	–	X	–
Contignisporites cooksoniae (Balme) Dettmann 1963	–	–	–	–	–	X	–	–	2	1
C. glebulentus Dettmann 1963	–	–	–	–	–	–	–	–	–	X
Converrucosisporites rewanensis (de Jersey) Playford & Dettmann 1965	–	–	–	X	–	–	–	–	X	–
Cooksonites variabilis Pocock 1962	–	–	–	–	X	X	–	–	–	–
Coronatispora perforata Dettmann 1963	–	–	–	–	–	X	–	–	–	X
Couperisporites tabulatus Dettmann 1963	–	–	–	–	–	–	X	–	X	X
Crybelosporites pannuceus (Brenner) Srivastava 1975	–	–	–	–	–	–	–	–	?	X
C. punctatus Dettmann 1963	–	X	–	–	–	–	–	–	X	–
C. stylosus Dettmann 1963	–	–	–	X	X	–	–	X	–	–
Cyathidites asper (Bolkhovitina) Dettmann 1963	–	–	–	–	–	–	–	–	–	8
C. australis Couper 1953	4	1	X	11	X	3	5	X	5	4
C. concavus (Bolkhovitina) Dettmann 1963	–	–	–	–	–	–	X	–	–	–
C. minor Couper 1953	16	11	X	19	X	5	17	X	9	10
Cycadopites nitidus (Balme) de Jersey 1964	1	X	X	X	X	X	X	X	2	X
Cyclosporites hughesii (Cookson & Dettmann) Cookson & Dettmann 1959	X	X	X	X	X	X	–	X	–	–
Densoisporites velatus Weyland & Krieger emend. Krasnova 1961	–	–	–	–	–	–	–	–	X	–
Dictyophyllidites crenatus Dettmann 1963	X	X	–	–	X	X	X	–	X	X
D. harrisii Couper 1958	–	X	–	–	–	X	–	–	X	1
Dictyotosporites complex Cookson & Dettmann 1958	–	X	X	X	–	X	X	–	X	–
D. speciosus Cookson & Dettmann 1958	X	X	–	X	X	X	X	–	–	–
Ephedripites multicostatus Brenner 1963	–	–	–	–	–	–	–	–	X	–
Foraminisporis asymmetricus (Cookson & Dettmann) Dettmann 1963	X	X	–	X	–	X	–	X	X	X
F. dailyi (Cookson & Dettmann) Dettmann 1963	X	–	–	–	–	–	–	–	X	X
F. wonthaggiensis (Cookson & Dettmann) Dettmann 1963	X	X	–	X	–	X	X	–	X	X
Foveosporites canalis Balme 1957	–	X	–	–	–	X	X	–	–	–
Foveotriletes parviretus (Balme) Dettmann 1963	–	–	–	–	–	X	–	–	–	–
Gleicheniidites circinidites (Cookson) Dettmann 1963	–	X	–	X	–	2	X	X	5	5
G. senonicus Ross emend. Skarby 1964	–	X	–	–	–	X	X	X	2	1
Ischyosporites crateris Balme 1957	X	X	–	X	–	X	–	–	X	X
Klukisporites lacunus Filatoff 1975	–	–	X	X	–	X	X	–	–	–

	1	2	3	4	5	6	7	8	9	10
K. scaberis (Cookson & Dettmann) Dettmann 1963	X	X	-	X	-	X	X	-	-	-
Kraeuselisporites linearis (Cookson & Dettmann) Dettmann 1963	-	-	-	-	-	-	-	X	X	-
Kuylisporites lunaris Cookson & Dettmann 1958	X	-	-	X	-	-	-	-	X	-
Laevigatosporites belfordii Burger 1976	-	-	-	-	-	-	-	-	X	-
L. ovatus Wilson & Webster 1946	X	-	-	X	-	-	-	-	X	X
Leptolepidites major Couper 1958	X	X	-	X	X	X	X	X	X	X
L. verrucatus Couper 1953	X	X	X	X	X	X	X	X	-	X
Lycopodiacidites asperatus Dettmann 1963	X	-	-	X	-	X	X	X	-	X
Lycopodiumsporites circolumenus Cookson & Dettmann 1958	X	X	-	X	X	X	X	X	X	-
Matonisporites cooksoniae Dettmann 1963	-	-	-	-	-	-	-	-	X	-
M. crassiangulatus (Balme) Dettmann 1963	X	-	-	-	-	X	X	-	1	X
Microcachryidites antarcticus Cookson 1947	9	6	X	14	X	11	5	X	9	5
Murospora florida (Balme) Pocock 1961	-	-	-	-	-	X	-	-	X	-
Neoraistrickia densata Filatoff 1975	-	-	-	-	-	-	-	-	-	X
N. suratensis McKellar 1974	-	-	-	X	X	X	-	-	-	-
N. truncatus (Cookson) Potonie 1956	X	2	-	1	X	X	3	X	X	X
Obtusisporis canadensis Pocock 1970	X	-	-	-	X	X	X	-	-	X
Osmundacidites dubius Burger 1980	1	X	-	-	-	X	-	-	X	X
O. wellmanii Couper 1953	6	3	-	X	-	6	6	X	5	2
Pilosisporites notensis Cookson & Dettmann 1958	X	X	-	X	X	X	-	-	X	X
P. parvispinosus Dettmann 1963	-	-	-	X	-	-	-	-	X	-
Podocarpidites ellipticus Cookson 1947	18	11	X	6	X	8	9	X	10	21
Polycingulatisporites clavus (Balme) Burger 1980	-	X	-	-	X	-	-	X	-	-
P. densatus (de Jersey) Playford & Dettmann 1965	X	-	-	X	-	-	-	-	-	-
Reticulatisporites pudens Balme 1957	X	X	X	-	-	X	-	X	-	-
Retitriletes austroclavatidites (Cookson) Döring <u>et al.</u> 1963	3	3	X	8	X	6	3	X	X	X
R. eminulus (Dettmann 1963)	X	X	X	X	-	-	-	-	-	-
R. facetus (Dettmann) Srivastava 1972	-	X	-	X	-	-	-	X	X	-
R. huttonensis McKellar 1974	-	-	-	X	-	X	-	X	-	-
R. nodosus (Dettmann) Srivastava 1977	X	X	X	-	X	X	X	X	-	-
R. reticulumsporites (Rouse) Döring <u>et al.</u> 1963	X	X	X	-	X	X	-	X	-	-
R. rosewoodensis (de Jersey) McKellar 1974	X	1	X	X	X	X	X	-	-	-
R. semimuris (Danzé-Corsin & Laveine) McKellar 1974	-	-	-	-	-	-	-	X	X	-
R. solidus (Burger 1980)	-	-	-	X	-	-	-	-	-	X
R. watherooensis Backhouse 1978	-	-	-	-	-	-	-	X	-	-
Rogalskaisporites cicatricosus (Rogalska) Danzé-Corsin & Laveine 1963	-	-	-	-	X	-	-	X	X	-
Sestrosporites pseudoalveolatus (Couper) Dettmann 1963	-	-	-	X	-	-	X	X	-	-
Staplinisporites caminus (Balme) Pocock 1962	-	-	-	-	-	X	X	-	-	-

	1	2	3	4	5	6	7	8	9	10
Stereisporites antiquasporites (Wilson & Webster) Dettmann 1963	10	3	X	X	X	X	4	X	2	1
S. pocockii Burger 1980	X	-	X	X	-	X	X	X	X	X
Tasmanites sp.	-	-	-	-	-	-	-	-	-	1
Todisporites sp.	-	-	-	-	-	-	-	-	-	X
Trilites tuberculiformis Cookson 1947	X	-	-	-	-	-	X	-	X	-
Trilobosporites purverulentus (Verbitskaya) Dettmann 1963	-	-	-	-	-	-	-	-	X	X
T. trioreticulosus Cookson & Dettmann 1958	-	-	-	-	-	-	-	-	X	-
Triporoletes reticulatus (Pocock) Playford 1971	-	-	-	-	-	-	-	-	X	-
Trisaccites microsaccatus (Couper) Couper 1960	X	X	-	X	X	2	X	X	X	X
Velosporites triquetrus (Lanz) Dettmann 1963	-	X	-	X	-	X	X	-	-	-
Vitreisporites pallidus (Reissinger) Nilsson 1958	-	-	X	-	-	X	-	-	-	-

REMANIÉ

	1	2	3	4	5	6	7	8	9	10
Barakarites rotatus (Balme & Hennelly) Bharadwaj & Tiwari 1964	-	-	-	-	-	-	-	-	X	-
Platysaccus sp.	-	-	-	-	-	-	-	-	X	-
Protohaploxypinus amplus (Balme & Hennelly) Hart 1964	-	-	-	-	-	-	-	-	X	-

MICROPLANKTON

	1	2	3	4	5	6	7	8	9	10
Aptea attadalica (Cookson & Eisenack) Davey & Verdier 1974	-	-	-	-	-	-	-	X	X	X
Apteodinium granulatum Eisenack 1958	-	-	-	-	-	X	X	-	X	X
A. maculatum Eisenack & Cookson 1960	-	-	-	-	-	-	-	-	X	-
Batioladinium jaegeri (Aberti) Brideaux 1975	-	-	-	-	-	-	-	-	-	X
B. micropoda Brideaux 1975	-	-	-	-	-	-	X	X	X	X
Canningia colliveri Cookson & Eisenack 1960	X	-	-	-	-	X	1	-	-	1
Canningia sp. A Morgan 1980	-	-	-	-	X	16	X	-	X	X
Cassiculosphaeridia magna Davey 1974	-	-	-	-	-	-	-	X	-	-
Chlamydophorella nyei Cookson & Eisenack 1958	X	X	-	-	X	-	X	X	X	X
C. solida Morgan 1980	-	-	-	-	-	-	X	-	-	-
Chlamydophorella sp.	-	-	-	-	-	-	-	-	X	-
Cleistosphaeridium aciculare Davey 1969	-	-	-	-	-	-	-	X	-	-
C. ancoriferum (Cookson & Eisenack) Davey et al. 1966 emend. Cookson & Eisenack 1969	-	-	-	-	-	X	-	-	-	-
C. polypes (Cookson & Eisenack) Davey 1969	-	-	-	-	X	-	X	X	X	X
Coronifera oceanica Cookson & Eisenack 1958	X	-	-	-	-	-	-	-	X	X
Cribroperidinium muderongense (Cookson & Eisenack) Davey 1969	X	X	X	-	-	X	-	X	X	X
C. perforante (Cookson & Eisenack) Morgan 1980	X	-	X	-	-	X	3	X	X	1

	1	2	3	4	5	6	7	8	9	10
Cyclonephelium compactum Deflandre & Cookson 1955	X	–	–	–	–	–	X	–	–	–
C. distinctum Deflandre & Cookson 1955	–	–	–	–	–	–	–	–	X	–
C. eisenackii Davey 1969	–	–	–	–	–	–	X	–	–	–
Dioonodinium davidii Morgan 1975	X	–	X	X	–	X	–	–	–	–
Dingodinium cerviculum Cookson & Eisenack 1958	–	X	–	–	–	–	X	X	X	X
Discorsia nana (Davey) Duxbury 1977	–	–	–	–	–	–	–	–	–	X
Endoscrinium luridum (Deflandre) Gocht 1970	–	–	–	–	–	–	–	–	X	–
Exochosphaeridium phragmites Davey et al. 1966	–	–	X	–	X	X	X	–	X	X
Fromea amphora Cookson & Eisenack 1958	–	–	–	–	–	–	X	X	–	–
Gonyaulacysta episoma Sarjeant 1966	–	–	–	–	–	X	–	X	X	X
Gonyaulacysta sp.	–	–	–	–	–	–	–	–	X	–
Heslertonia striata (Eisenack & Cookson) Norvick 1975	–	–	–	–	–	X	X	–	–	–
Hystrichodinium pulchrum Deflandre 1935	–	–	–	–	–	–	X	X	–	–
Leptodinium asymmetricum Morgan 1980	–	–	–	–	–	X	–	X	–	–
L. falmmeolum Morgan 1980	–	–	–	–	–	–	–	X	X	–
Lithodinia helbyi Morgan 1980	X	–	X	X	X	1	3	X	X	X
Micrhystridium sp.	X	–	–	X	X	–	–	X	X	X
Muderongia mcwhaei Cookson & Eisenack 1958	–	–	–	–	–	–	–	–	X	X
M. staurota Sarjeant 1966	–	–	–	–	X	–	–	–	X	X
M. tetracantha (Gocht) Alberti 1961	–	–	–	–	–	–	X	–	–	–
Odontochitina operculata (Wetzel) Deflandre & Cookson 1955	X	–	X	X	X	X	X	–	–	–
Odontochitina sp.	–	–	–	–	–	–	–	–	–	X
Oligosphaeridium complex (White) Davey & Williams 1966	–	–	–	–	–	–	–	X	X	X
O. pulcherrimum (Deflandre & Cookson) Davey & Williams 1966	–	X	X	–	–	–	X	–	X	X
Palaeoperidinium cretaceum Pocock ex Davey 1970	–	–	–	–	–	X	–	–	X	X
Prolixosphaeridium parvispinum Morgan 1980	–	–	–	–	–	–	–	X	–	–
Protoellipsodinium densispinum Morgan 1980	–	–	–	–	–	–	X	–	–	–
Pterospermopsis aureolata Cookson & Eisenack 1958	–	–	–	–	–	–	–	–	X	–
P. australiensis Deflandre & Cookson 1955	–	–	–	–	–	X	X	–	X	X
Schizosporis reticulatus Cookson & Dettmann 1959	–	–	–	–	–	–	–	–	X	X
Spinidinium boydii Morgan 1975	–	–	–	–	–	–	–	X	–	–
Spiniferites ramosus ramosus (Ehrenburg) Loeblich & Loeblich 1966	–	–	–	–	–	–	X	X	X	–
S. wetzeli (Deflandre) Sarjeant 1970	–	–	–	–	–	X	X	–	X	–
Stephodinium dianneae Morgan 1980	–	–	–	X	–	X	X	–	–	–
Tanyosphaeridium salpinx Norvick 1975	–	X	–	–	–	–	–	–	X	X
Tenua aptiense Burger 1980	X	–	–	–	–	–	X	–	X	–
T. echinata Gitmez & Sarjeant 1972	–	–	–	–	–	–	–	X	–	–
T. hystrix Eisenack 1958	–	–	–	–	–	–	–	X	–	–

	1	2	3	4	5	6	7	8	9	10
Veryhachium reductum (Deunff) Jekhowsky 1961	X	–	–	–	X	X	X	–	–	X
V. singulare (Firtion) Burger 1980	–	–	–	–	–	–	X	–	X	–
Wallodinium lunum (Cookson & Eisenack) Lentin & Williams 1973	–	–	–	–	–	X	–	–	X	X
Yalkapodinium scutum Morgan 1980	–	–	–	–	–	X	–	–	–	–

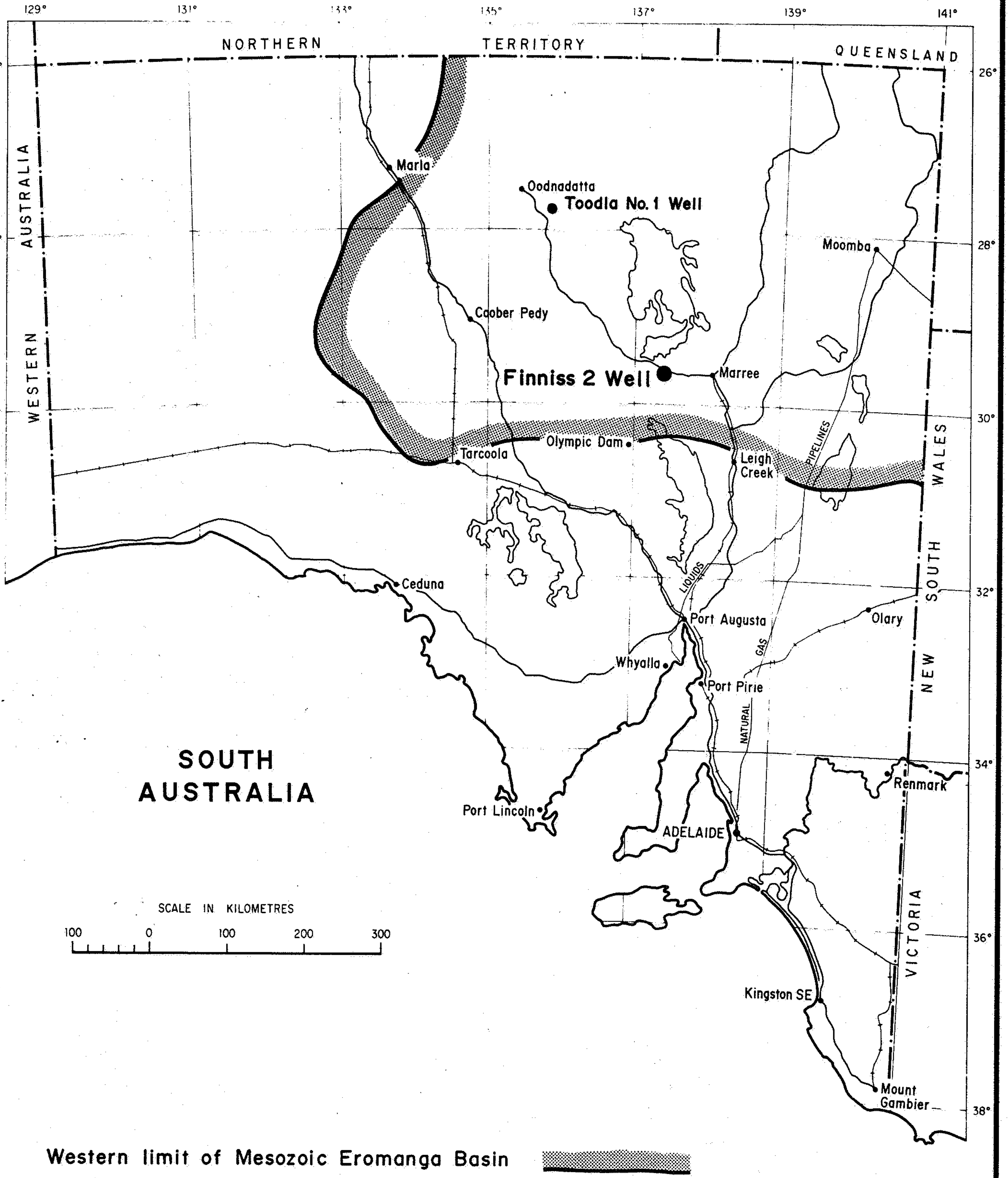


FIG. 1

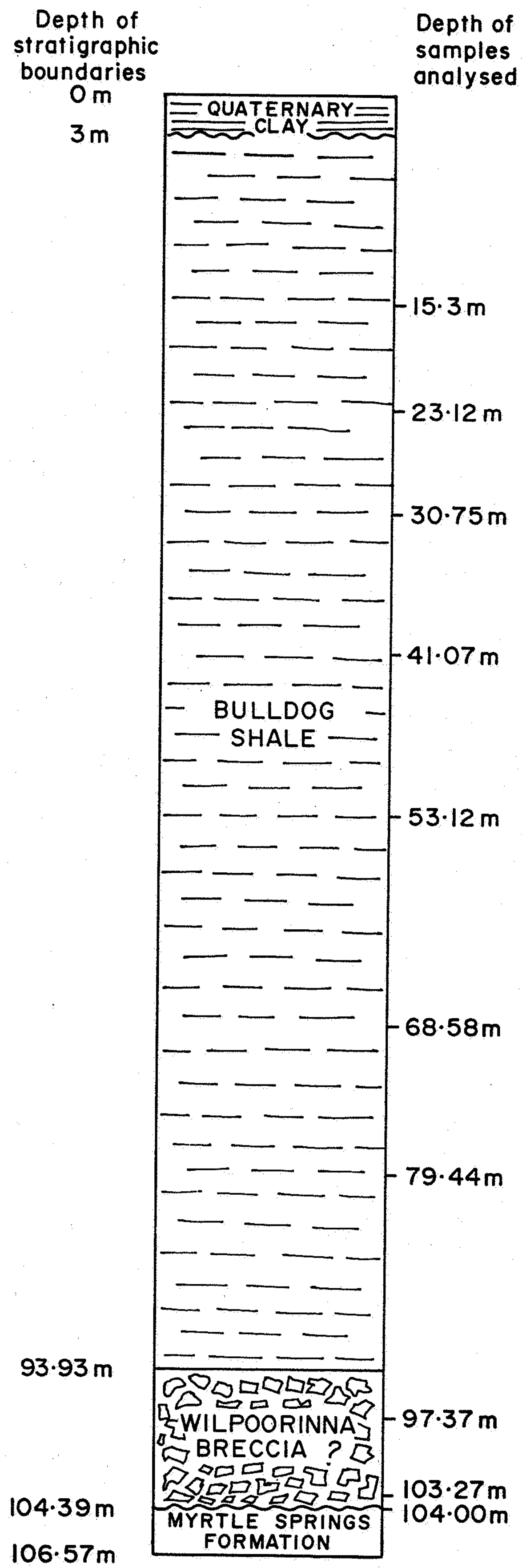
DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

PALYNOSTRATIGRAPHY OF SADME FINNISS 2 WELL
SOUTHWESTERN EROMANGA BASIN

LOCALITY PLAN

COMPILED N. ALLEY	C.D.O. DATE
DRAWN E. CALABIO	SCALE 1:7,500,000
DATE FEB. '1986	PLAN NUMBER
CHECKED	S 18516

4045



B. G. Forbes, SADME, personal communication, 1985.

FIG. 2

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA

PALYNOSTRATIGRAPHY OF SADME FINNISS 2 WELL
SOUTHWESTERN EROMANGA BASIN

LITHOSTRATIGRAPHY

COMPILED *N. Alley*	C.D.O.	DATE
DRAWN *E. Calabio*	SCALE *As shown*	
DATE *Feb. 1986*	PLAN NUMBER	
CHECKED	S 18517	

4045

AGE	SPORE - POLLEN UNITS (After Dettmann and Playford, 1969)		SPORE - POLLEN UNITS (After Price *et. al.* 1985)		MICROPLANKTON UNITS (After Morgan 1980a)	
CENOMANIAN	*Appendicisporites distocarinatus*		PK7			
CENOMANIAN / ALBIAN	*Phimopollenites pannosus*		PK6		*Endoceratium ludbrookiae*	c
						b
						a
ALBIAN	*Coptospora paradoxa*		PK5	PK5.2	*Pseudoceratium turneri*	c
				PK5.1		b
ALBIAN / APTIAN	*Dictyotosporites speciosus*	*Crybelosporites striatus*	PK4			a
APTIAN		*Cyclosporites hughesii*	PK3	PK3.2	*Odontochitina operculata*	c
						b
				PK3.1		a
LATE NEOCOMIAN	*Crybelosporites stylosus*	*Foraminisporis wonthaggiensis*	PK2	PK2.2	Non - marine	
				PK2.1		
EARLY NEOCOMIAN		*Cicatricosisporites australiensis*	PK1	PK1.2		
				PK1.1		
LATE JURASSIC	*Microcachryidites antarcticus*		PJ6			

FIG. 3

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

PALYNOSTRATIGRAPHY OF SADME FINNISS 2 WELL
SOUTHWESTERN EROMANGA BASIN
CRETACEOUS PALYNOLOGICAL ZONATIONS

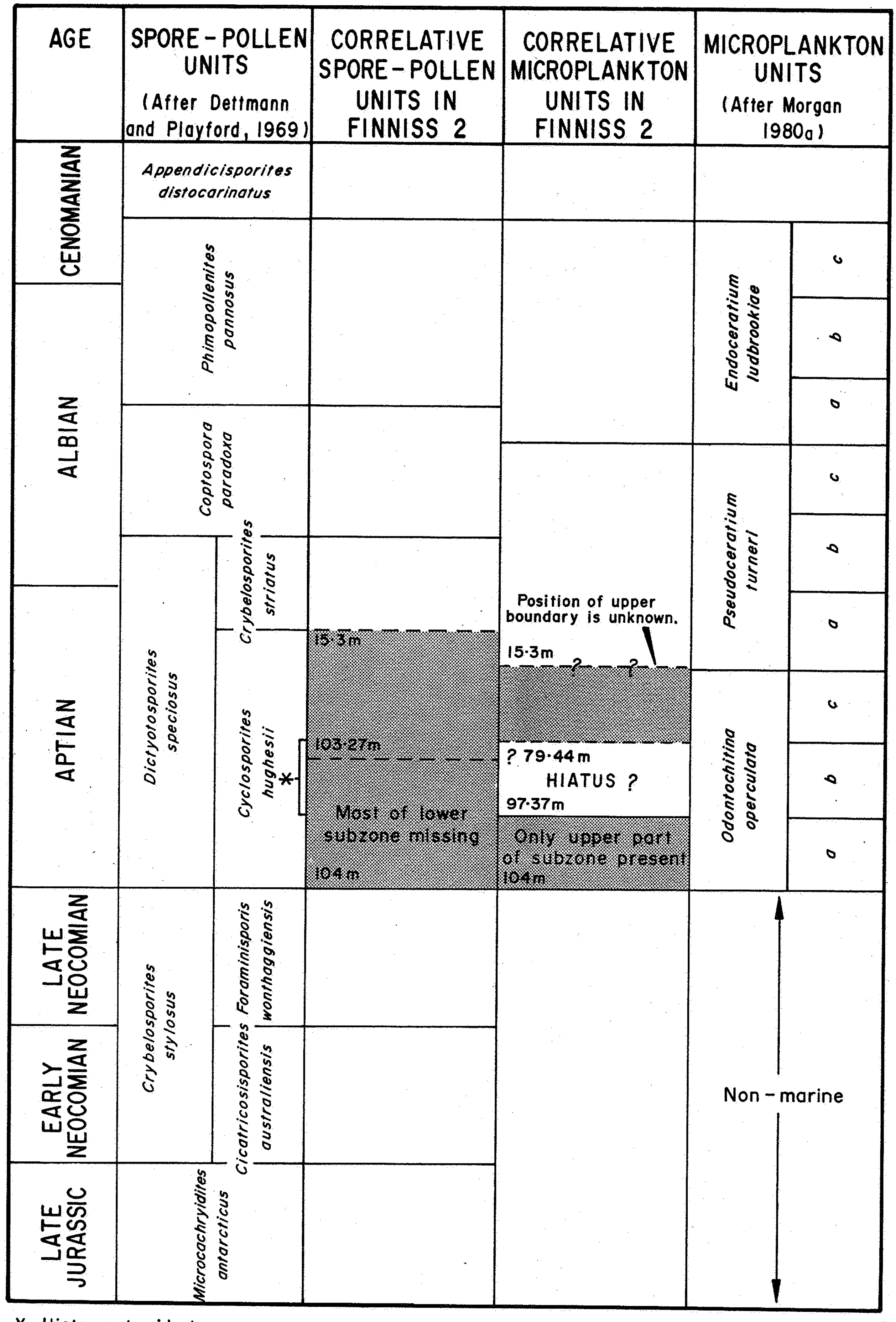
COMPILED N. ALLEY
DRAWN E. CALABIO
DATE FEB.' 1986
CHECKED

C.D.O. DATE

SCALE

PLAN NUMBER S 18518

4045



* Hiatus not evident

FIG. 4

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

PALYNOSTRATIGRAPHY OF SADME FINNISS 2 WELL SOUTHWESTERN EROMANGA BASIN AGE OF SAMPLED INTERVALS

COMPILED	N. ALLEY	C.D.O.	DATE
DRAWN	E. CALABIO	SCALE	
DATE	FEB.'1986	PLAN NUMBER	S 18519
CHECKED			

4045

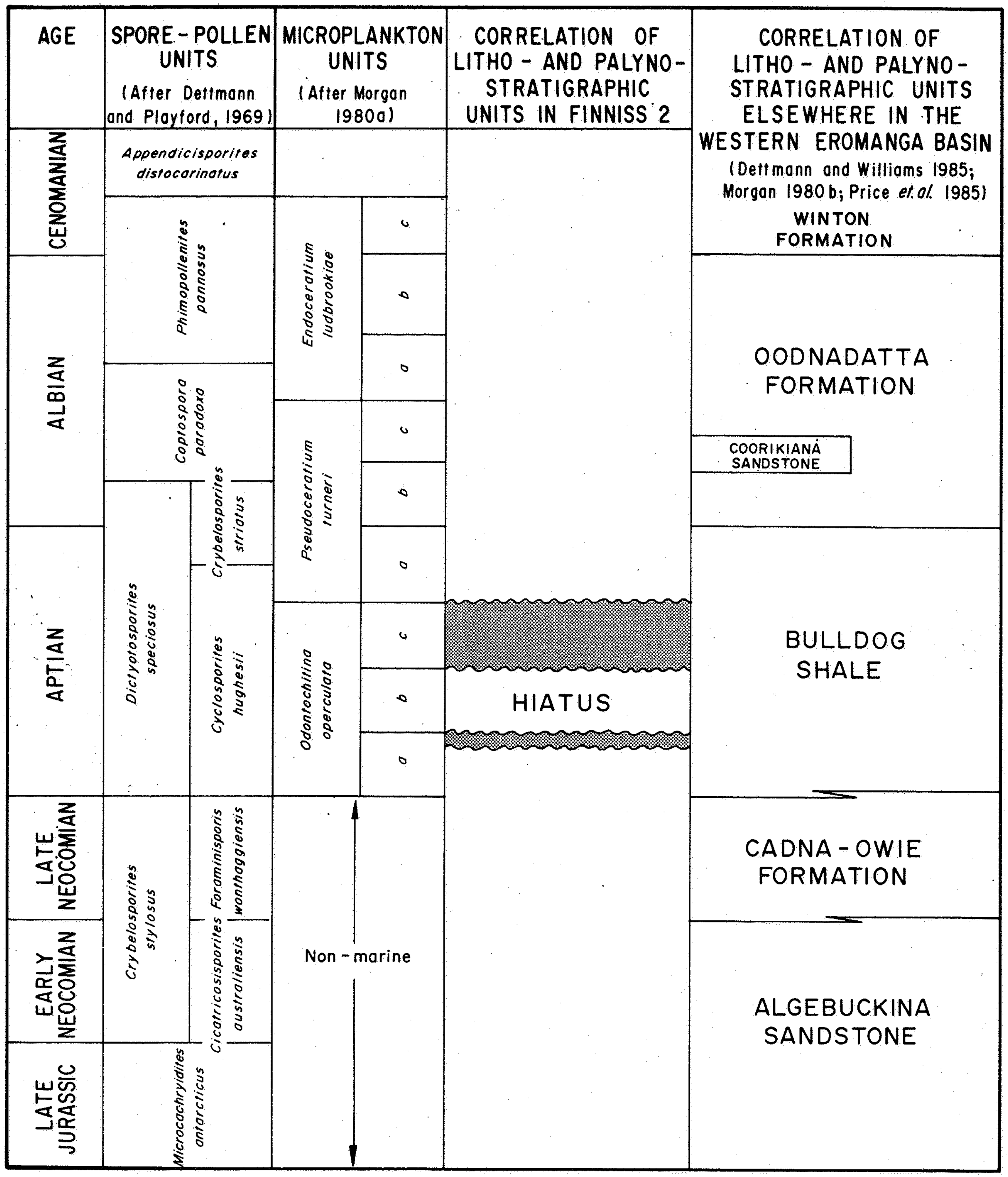


FIG. 5

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

PALYNOSTRATIGRAPHY OF SADME FINNISS 2 WELL
SOUTHWESTERN EROMANGA BASIN
CORRELATION OF LITHO - AND PALYNO - STRATIGRAPHIC UNITS

COMPILED N. Alley	C.D.O.	DATE
DRAWN E. Calabio	SCALE	
DATE Feb. '1986	PLAN NUMBER S 18520	
CHECKED		

4045