DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

REPT. BK. NO. 90/17

EARLY CAMBRIAN ANDAMOOKA LIMESTONE AND YARRAWURTA SHALE OF THE STUART SHELF

GEOLOGICAL SURVEY

by

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REGIONAL GEOLOGY

Note: revised extent of € seds based on corrected location of Peewena 1 (Figs 1 + 3)

FEBRUARY, 1990

DME 205/88

B00988

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ABSTRACT

Early Cambrian (Atdabanian to Botomian) sediments on the Stuart Shelf are known from limited outcrop and over 70 drillholes. They are divided into the Andamooka Limestone, including the Curdlawidny Siltstone Member, and the overlying Yarrawurta Shale.

The Andamooka Limestone comprises up to 166m of dolomitised peritidal to subtidal limestone deposited in an open shelf environment. It is only locally fossiliferous. The Curdlawidny Siltstone Member (up to 25m thick) and Yarrawurta Shale (up to 90m thick) represent intertidal sedimentation of unfossiliferous terrigenous clastics. Previous correlations with the Adelaide Geosyncline are supported and refined. Economic potential is considered low.

GEOLOGICAL SETTING, DISTRIBUTION AND THICKNESS

Following the retreat of the sea from the Adelaide Geosyncline and Stuart Shelf at the close of the Adelaidean (Late Proterozoic), renewed transgression in the Early Cambrian resulted in the deposition of shallow-water carbonates and red-bed clastics, termed the Andamooka Limestone and Yarrawurta Shale (Johns, 1968), on the northern Stuart Shelf (Fig. 1). Sedimentation was probably continuous northwesterly into the

Officer Basin via a narrow seaway through the BILLA KALINA area and below the Boorthanna Trough (Gatehouse, 1986), based on isolated remnants of Early Cambrian Ouldburra(?) Formation (Brewer et al., 1987) in drillholes Warrina Creek 1 (Kennecott Explorations (Aust.) Ltd, 1978), Weedina 1 (Pexa Oil, N.L., 1970) and Cootanoorina 1 (Allchurch et al., 1973) (Fig. 1). Although continuity with sediments of the Adelaide Geosyncline to the east has been disrupted by ?Delamerian and Cainozoic faulting along the Torrens Hinge Zone, correlation of the Andamooka Limestone with the Ajax and Wilkawillina Limestones (Hawker Group), and the Yarrawurta Shale with the Billy Creek Formation, have long been accepted (e.g. Segnit, 1939; Johns, 1968; Daily, 1976) (Fig. 2).

The Early Cambrian sediments of the Stuart Shelf extend over much of ANDAMOOKA (Dalgarno, 1982) and eastern KINGOONYA (Cowley and Martin, in prep) and probably extend onto southern CURDIMURKA and southeastern BILLA KALINA (Figs. 1 & 3). Present limits are preservational only. Outcrop is confined to the eastern and southern portions of this area, where the best exposures are found near "Purple Downs" in cliffs adjacent to lakes and swamps, northeast of Andamooka Opalfield, and at the northern tip of Lake Torrens. Elsewhere, the Cambrian sequence is concealed beneath a cover of Cainozoic sands and sediments of the Carboniferous-Permian Arckaringa and Jurassic-Cretaceous Eromanga Basins.

The Stuart Shelf Cambrian sediments are thickest in the northeast, indicating a shallow regional dip in that direction. In detail, however, the Cambrian sediments are seen to be gently warped, with dips ranging from horizontal to 10^{0}, and with variable azimuths. Steeper westerly dips are evident near the Torrens Hinge Zone north of Lake Torrens, where the Cambrian sequence is dragged up against a major fault near Lake Arthur (Johns, 1968; Murrell, 1977). This fault forms the eastern limit of the Stuart Shelf Cambrian except for two small outcrops near Lake Pidleeominna (Fig. 3). Between here and the Flinders

Ranges drilling has revealed only probable-Adelaidean sediments below the widespread Cainozoic cover (Electricity Trust of South Australia, 1988).

The base of the Cambrian on the Stuart Shelf is locally disconformable, but is regionally a low-angle unconformity. Very minor tilting and subsequent erosion of the underlying Adelaidean Tent Hill Formation have resulted in the Cambrian resting upon successively older members of this formation from east (Yarloo Shale Member) to north-west (Tregolana Shale Member).

Andamooka Limestone

The oldest unit of the Cambrian sequence on the Stuart Shelf is the Andamooka Limestone (Johns, 1968), predominantly comprising grey, off-white, brown, buff or pink recrystallised limestone, which is commonly dolomitised and locally sandy or pyritic (Plate 1). This limestone is generally massive to indistinctly-bedded and vughy, but well-bedded, flaggy sections are occasionally present in outcrop (Plate 2), for example near Yarra Wurta Cliff (Johns, 1968). It contains interbeds of intraformational carbonate or shale-chip conglomerate and breccia, and, towards the north and northeast, interbeds of pale grey, pink and buff dolomitic siltstone. Oolitic limestone is widespread in the lower part of the unit. Rare interbeds of brown and green (?glauconitic) shale and blue or purple chert have been recorded from exploration drilling. Cyclic sedimentation is notable near the base of the Andamooka Limestone in Western Mining Corporation SHD-1 northwest of Lake Torrens (Fig. 3). Here, shallowing-upward cycles 1.5 to 6 metres thick begin with massive, vughy or oolitic dolomite grading upwards through indistinctly-bedded dolomitic mudstone into dolomitic mudstone interbedded with intraclast grainstone.

Chalcedony and banded agate concretions are often found within the limestone, or widely strewn on the surface around deeply-eroded areas. They are particularly common near Stuart

Creek Opalfield (Crettenden and Barnes, 1978) and on southeastern KINGOONYA (Cowley and Martin, in prep.), where they can be seen to be concentrated within, and aligned along, particular beds within the limestone.

The base of the Cambrian is exposed in outcrop near Andamooka Opalfield, at Coorlay Lagoon, Purple Lake, Lake Mary and Lake Campbell, and in several exploration drillholes; in most cases a basal sequence up to 10m thick of mixed carbonate-clastic sediments is evident. They comprise purple, brown and green shale and calcareous siltstone, brown to grey limestone and sandy dolomite, and sandstone and grit in various proportions. Locally a boulder bed is developed (Johns, 1968), containing clasts of limestone, sandstone and red-brown or green shale. Thomson (1965) suggested correlation of these basal Cambrian beds with the Parachilna Formation (Dalgarno, 1964) of the Adelaide Geosyncline, but this correlation is now not supported (Gravestock, in prep.). In the scheme adopted in this report (Fig. 2), the base of the Andamooka Limestone may correlate in part with the Woodendinna Dolomite (Haslett, 1975).

The Andamooka Limestone is thickest (165.7 m) in Amoco SCYW-1a (Amoco Minerals Australia Co., 1982) near the Torrens Hinge Zone, and decreases steadily in thickness towards its southern, western and northwestern limits.

Near "Parakylia", the Andamooka Limestone contains a unit up to 25m thick of mixed clastic and carbonate sediments, for which the name Curdlawidny Siltstone Member is proposed (Cowley, in prep.). It comprises red-brown and bluish- to greenish-grey, partly calcareous and micaceous mudstone, siltstone and fine-grained sandstone, containing interbeds and lenses of yellow-weathering, red, yellow or brown fine-grained silty limestone or dolomitic limestone. The siltstone and sandstone display planar bedding and cross-bedding, and local ripple-marks, shale clasts and mudcracks, and rare climbing ripples and load casts (Plates 3-5). The best outcrops are found in cliffs on the western side of Red Lake, southeast of "Parakylia"; the unit is apparently

confined to an area within 20km of "Parakylia" (Fig. 3). The Curdlawidny Siltstone Member closely resembles the Yarrawurta Shale which overlies the Andamooka Limestone.

The Andamooka Limestone is largely unfossiliferous, although cryptalgal laminations, trilobite fragments, archaeocyaths and the calcified microbial microfossils (calcimicrobes) Botomaella, Renalcis and Epiphyton are locally abundant, notably in Amoco SCYW-1a (Plates 6 and 7; James and Gravestock, in press), in Shell RL-1 (Cowley and Martin, in prep.) and in outcrop north of Andamooka and near the northern tip of Lake Torrens (Johns, 1968; Murrell, 1977). Calcimicrobe-dominated bioherms up to 80m across occur in upper Andamooka Limestone north of Lake Torrens. Archaeocyaths immediately below this biohermal unit correlate with those in the upper part of the Wilkawillina Limestone of the Flinders Ranges (D.I. Gravestock, pers. comm., 1990). Stromatolites have been recorded from SCYW-1a (James and Gravestock, in prep.), in spoils from Toll Dam southwest of "Parakylia" (Cowley and Martin, in prep.), from Kennecott-Samedan Prices Bore 1 northeast of "Parakylia" (Kennecott Explorations (Aust.) Ltd, 1979), from the bluffs overlooking Coorlay Lagoon, and from the uppermost part of the formation at the northern extremity of Lake Torrens (Fig. 36 in Wopfner et al., 1969).

Yarrawurta Shale

Overlying the Andamooka Limestone on its northeastern margin is the Yarrawurta Shale (Johns, 1968), consisting of unfossiliferous, red-brown, purple and green-grey calcareous and micaceous shale and siltstone with thin interbedded sandstone, intraformational mud-flake breccia (Vnuk, 1978) and ash-fall tuffs (Daily, 1976). In Western Mining Corporation BD-1 the unit contains numerous slumps, and fine pyrite is evident in the reduced grey-green shale.

Outcrop is confined to the vicinity of the northern tip of Lake Torrens, where the unit is flaggy to fissile, gently folded

and faulted, and displays thin bedding and fine laminations, cross-lamination and ripple-marks (Plate 9).

The thickest known intersection of Yarrawurta Shale is 90m, in Western Mining Corporation BD-2 near Mattaweara Lagoon; the top of the formation is nowhere preserved.

The conformable contact with the underlying Andamooka Limestone near Stuart Creek Opalfield has been described as "gradational" by Vnuk (1978), and Crettenden and Barnes (1978) report interbeds of Yarrawurta Shale within the topmost section of the Andamooka Limestone here.

Note that Johns et al. (1966) introduced the hyphenated term Yarra-wurta Shale, with the name derived (in changed form) from Yarra Wurta Cliff, north of Lake Torrens, but the unit was first described in Johns (1968) as Yarrawurta Shale.

Depositional Environment and Age

Little detailed palaeogeographic work has been carried out on the Andamooka Limestone and Yarrawurta Shale; much can be inferred, however, from recent studies conducted mainly on correlative units within the Adelaide Geosyncline (Jenkins and Gravestock, 1988; James and Gravestock, in press, Gravestock, in prep.) (Fig. 2).

The Woodendinna Dolomite, Ajax/Wilkawillina (=Andamooka) Limestones and Billy Creek Formation (=Yarrawurta Shale) together represent two onlap-offlap sequences, separated by an interval of exposure or reduced sedimentation (James and Gravestock, in press). Sequence 1 comprises a lower unit of peritidal and oolitic carbonates (Woodendinna Dolomite) and an upper unit of subtidal limestone (lower Wilkawillina Limestone), deposited in an open shelf environment, and subsequently dolomitised. Sequence 2 comprises fossiliferous shallow open shelf carbonates deposited in subtidal to shelf margin environments (upper Wilkawillina Limestone), overlain by terrigenous redbeds of the Billy Creek Formation. The Andamooka Limestone-Yarrawurta Shale in Amoco SCYW-1a is divided into two

portions separated by an exposure surface within the Andamooka Limestone. The lower portion is heavily dolomitised and displays dissolution cavities, indicative of a period of subaerial exposure, immediately below the contact. The upper portion consists of alternating peritidal and fossiliferous subtidal limestone deposited in an open shelf environment and partly dolomitised, overlain by redbeds of the Yarrawurta Shale. James and Gravestock (in press) correlated these upper and lower portions of the Early Cambrian in SCYW-1a with Sequences 1 and 2 respectively, but Gravestock (in prep.) has instead equated both portions with Sequence 2 (his sequences B and C) with the exposure surface in SCYW-1a now equivalent to one recognised by him within the upper Wilkawillina Limestone.

The Curdlawidny Siltstone Member probably records an episode of intertidal sedimentation of terrigenous clastics, perhaps reflecting the proximity of the "Parakylia" area to the Early Cambrian shoreline. Gravestock (in prep.) suggested that the Curdlawidny Siltstone Member may be a lowstand deposit correlating with the Bunkers Sandstone, and with a hiatus within the upper Wilkawillina Limestone. Because the Member is within 70m of the base of the Andamooka Limestone (mostly within 30m; Cowley and Martin, in prep.), it is considered more likely that it represents near-shore deposition contemporaneous with the break between Sequences 1 and 2 (Fig. 2). This break is probably also present within SCYW-1a, but is concealed by strong dolomitisation (Gravestock, pers. comm., 1990).

Mild uplift of areas adjacent to the Cambrian shelf sea resulted initially in shallowing of the shelf, with subsequent development of stromatolites, dolomitisation and "birdseye" limestone at the top of the Andamooka Limestone (Daily, 1976). This was followed by progradation of terrigenous intertidal clastics of the Yarrawurta Shale sourced from these uplifted margins. By analogy with the basal Warragee Member of the correlative Billy Creek Formation (Moore, 1979), the Yarrawurta

Shale was probably deposited on muddy tidal flats subject to periodic exposure and desiccation.

The age of the Wilkawillina and Ajax Limestones has been determined from archaeocyaths, trilobites and brachiopods as Early Cambrian (Atdabanian to Botomian). However, the basal clastic-carbonate unit of the Andamooka Limestone is considered by Gravestock (in prep.) as a highstand deposit equivalent to the upper Wilkawillina and Ajax Limestones, of Botomian age only (Fig. 2). In the scheme adopted in this paper, the Atdabanian-Botomian boundary would be located at the base of the Curdlawidny Siltstone Member, close to the base of the Andamooka Limestone which then may be in part correlatable with the Woodendinna Dolomite (Fig. 2). Unfortunately, there appear to be no fossils available in this lower part to confirm this interpretation. The Billy Creek Formation (=Yarrawurta Shale) is interpreted to be late Botomian in age.

Economic Geology

The basal Andamooka Limestone has been investigated sporadically for lead-zinc and copper at the same stratigraphic level known to host numerous concentrations within the Adelaide Geosyncline, but only scattered weak values have been obtained (Thomson, 1965; Johns, 1972).

Copper was mined from the O.K. Copper Mine near the northern tip of Lake Torrens around the turn of the century, but only a small production resulted. The ore comprised malachite, chalcocite and iron oxides in veins within joints in the Andamooka Limestone (Johns, 1968). Regional geochemical sampling by Asarco (Aust.) Pty Ltd (1971) located weak copper mineralisation in weathered, porous orange-brown limestone and overlying Holocene lake sediments at the Peninsula Prospect on the shores of Lake Torrens. Minerals found here included malachite, tennantite, azurite, chrysocolla, calciovolborthite ($CaCu(VO_4)OH$), and, in shallow drilling, traces of chalcopyrite and covellite. Robertson (1988) documents maximum values of

2700 ppm Cu, 440 ppm Pb and 810 ppm Zn in trenches and 4300 ppm Cu, 1700 ppm Pb and 550 ppm Zn in the drillholes; he considered the mineralisation to be secondary, near-surface enrichment.

Robertson (1984) draws attention to the presence of pyrite and fluorite in Amoco SCYW-1A, pointing to potential for Mississippi Valley-type Pb-Zn mineralisation.

Occasional analyses of the Andamooka Limestone for phosphate have revealed only trace amounts, with no values exceeding 1% P_2O_5 being recorded.

Agate nodules within the Andamooka Limestone near Stuart Creek Opalfield have been investigated for gem-quality material by Crettenden and Barnes (1978), but colour and banding are poorly developed.

Opal workings are present within bleached Yarrawurta Shale where it is overlain by Cretaceous sediments at Yarra Wurta Cliff. Only potch is recorded to have been produced (Barnes and Scott, 1979).

Acknowledgements

Western Mining Corporation and its joint venturers kindly provided data on the cover sequence in a number of confidential holes on their Stuart Shelf exploration license.

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TABLE 1. DRILLHOLE DATA

Drillhole	Company	SADME Envelope reference	DEPTH TO BASE (metres) Late Palaeozoic to Recent	Yarrawurta Shale	Andamooka Limestone	Interval Intersected (metres) Curdlawidny Siltstone Member
PPR-4B	Australian Selection Pty Ltd	2991	4	-	82	-
PPR-5/ SAP-1	Australian Selection Pty Ltd	2991, 3693	1	-	72	-
PPR-6	Australian Selection Pty Ltd	2991	12	-	96	12-26
PPR-7	Australian Selection Pty Ltd	3693	8	-	40	-
SCYW-1A	Amoco Minerals Australia Co.	3637	-	28.47	196.2	-
BLD-3	Western Mining Corporation	6562	4	-	82	-
BLD-4	Western Mining Corporation	6562	2	-	100	-
SHD-1	Western Mining Corporation	6562	18	108	254.5	-
TWN-1	Western Mining Corporation	6562	8	-	26	-

TWN-2	Western Mining Corporation	6562	4	-	20	-
TWN-3	Western Mining Corporation	6562	2	-	16	-
P-2	Dampier Mining Co. Ltd	2698	10	-	43+	10-25
P-3	Dampier Mining Co. Ltd	2698	19	-	34+	19-32
P-4	Dampier Mining Co. Ltd	2698	19	-	59	-
P-5	Dampier Mining Co. Ltd	2698	24	-	50+	-
P-6	Dampier Mining Co. Ltd	2698	16	-	45	-
P-7	Dampier Mining Co. Ltd	2698	16	-	52	-
P-8	Dampier Mining Co. Ltd	2698	9	-	52	9-24
P-9	Dampier Mining Co. Ltd	2698	6	-	40	6-18
BDM-1	Carpentaria Exploration Co. Pty Ltd	2980, 3444	3	-	16	-
BDM-2	Carpentaria Exploration Co. Pty Ltd	2980, 3444	9	-	42	-
Prices Bore 1	Kennecott Explorations (Aust) Pty Ltd/Samedan Oil Corp.	3002, 3067	48	-	118	-

Peeweena 1	Kennecott Explorations (Aust) Pty Ltd/Samedan Oil Corp.	3002, 3067	42	-	120	-
Playford 1	Kennecott Explorations (Aust) Pty Ltd/Samedan Oil Corp.	3002, 3067	33	-	155	-
PRE-1	Australian Selection Pty. Ltd.	3152	50	-	130	-
RL-1	Shell Co. of Aust. Ltd	4113	22.6	-	70	-
DH-1	Stockdale Prospecting Ltd	4272	54.5	-	68+	-
DH-2	Stockdale Prospecting Ltd	4272	54	-	87.5+	-
DH-4	Stockdale Prospecting Ltd	4272	54.5	-	93.5+	-
DH-10	Stockdale Prospecting Ltd.	4272	138	-	138.5+	-
AND-RP-1	Asarco (Aust) Pty Ltd	1366	-	-	27.4+	-
AND-RP-2	Asarco (Aust) Pty Ltd	1366	-	-	64+	-
AND-RP-3	Asarco (Aust) Pty Ltd	1366	-	-	32.9+	-
AND-RP-4	Asarco (Aust) Pty Ltd	1366	1.5	-	64.9+	-
AND-RP-5	Asarco (Aust) Pty Ltd	1366	0.3	-	61+	-
AND-RP-6	Asarco (Aust) Pty Ltd	1366	-	-	79.2+	-
AND-RP-7	Asarco (Aust) Pty Ltd	1366	-	-	39.6+	-
AND-RP-8	Asarco (Aust) Pty Ltd	1366	-	-	33.5+	-
AND-RP-9	Asarco (Aust) Pty Ltd	1366	-	-	67.1+	-
AND-RP-10	Asarco (Aust) Pty Ltd	1366	6.1	-	64+	-
AND-RP-11	Asarco (Aust) Pty Ltd	1366	3	-	61+	-
AND-RP-12	Asarco (Aust) Pty Ltd	1366	-	-	43.6+	-

RD-16	Western Mining Corporation	6562	-	-	40	-
ACD-1	Western Mining Corporation	6562	-	-	40	-
LTA-1	Mines Exploration Pty Ltd	2358	-	-	34.7	-
LTA-2	Mines Exploration Pty Ltd	2358	-	-	36.9	-
LTA-3	Mines Exploration Pty Ltd	2358	-	-	41.1	-
BD-1	Western Mining Corporation	Confidential	-	78.6	217.4	-
BD-2	Wstern Mining Corporation	Confidential	18	110	257.95	-
TOD-1	Western Mining Corporation	Confidential	-	-	134.87	-
TOD-2	Western Mining Corporation	Confidential	4	26	136	-
TOD-3	Western Mining Corporation	Confidential	-	36	144	-
SGD-1	Western Mining Corporation	Confidential	34	-	60	-
SGD-2	Western Mining Corporation	Confidential	14	-	30	-
SGD-4	Western Mining Corporation	Confidential	20	-	40	-
SGD-5	Western Mining Corporation	Confidential	3	-	33	-
SGD-6	Western Mining Corporation	Confidential	24	-	38	-
PD-1A	Western Mining Corporation	Confidential	-	-	10	-

BLD-1	Western Mining Corporation	Confidential	-	-	18	-
BLD-2	Western Mining Corporation	Confidential	-	-	36	-
WRD-2	Western Mining Corporation	Confidential	2	-	10	-
WRD-4	Western Mining Corporation	Confidential	18	-	32	
WRD-6	Western Mining Corporation	Confidential	20	-	34	-
WRD-16	Western Mining Corporation	Confidential	-	-	7	-
RD-2	Western Mining Corporation	Confidential	-	-	42.5	-
ACD-2	Western Mining Corporation	Confidential	2	-	27	-
ACD-3	Western Mining Corporation	Confidential	2	-	32	-
ACD-4	Western Mining Corporation	Confidential	18	-	60	-
ACD-5	Western Mining Corporation	Confidential	20	-	46	-
ACD-6	Western Mining Corporation	Confidential	2	-	38	-
ACD-7	Western Mining Corporation	Confidential	15	-	44	-
ACD-8	Western Mining Corporation	Confidential	26	-	32	-
ACD-9	Western Mining Corporation	Confidential	10	-	41	-
ACD-10	Western Mining Corporation	Confidential	2	-	44	-

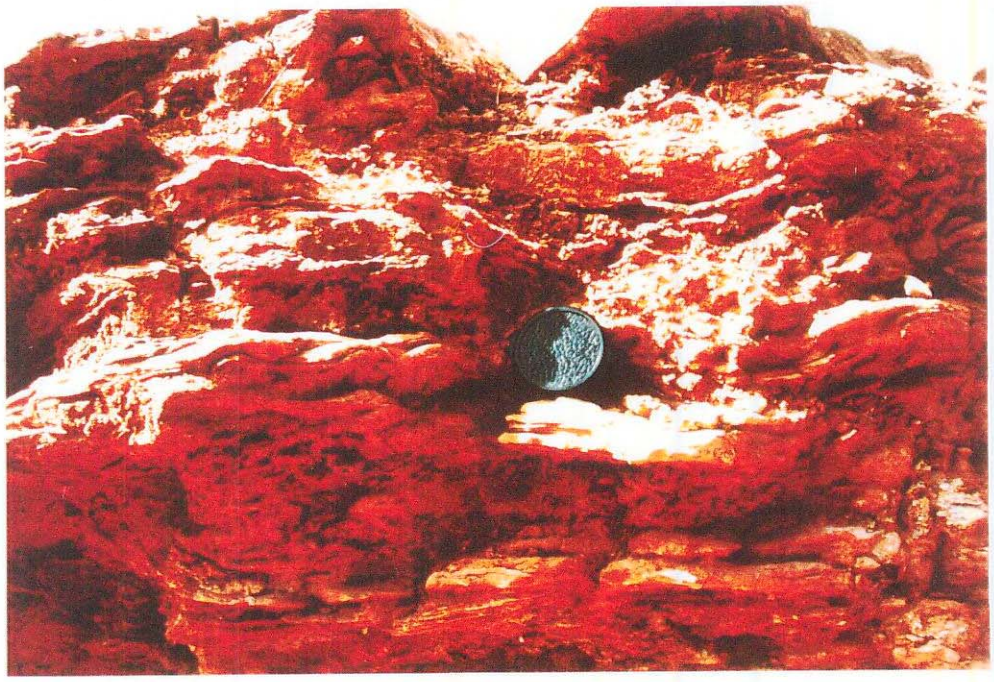
ACD-12	Western Mining Corporation	Confidential	2	-	36	-
TD-3	Western Mining Corporation	Confidential	22	-	34.1	-

PLATES

1

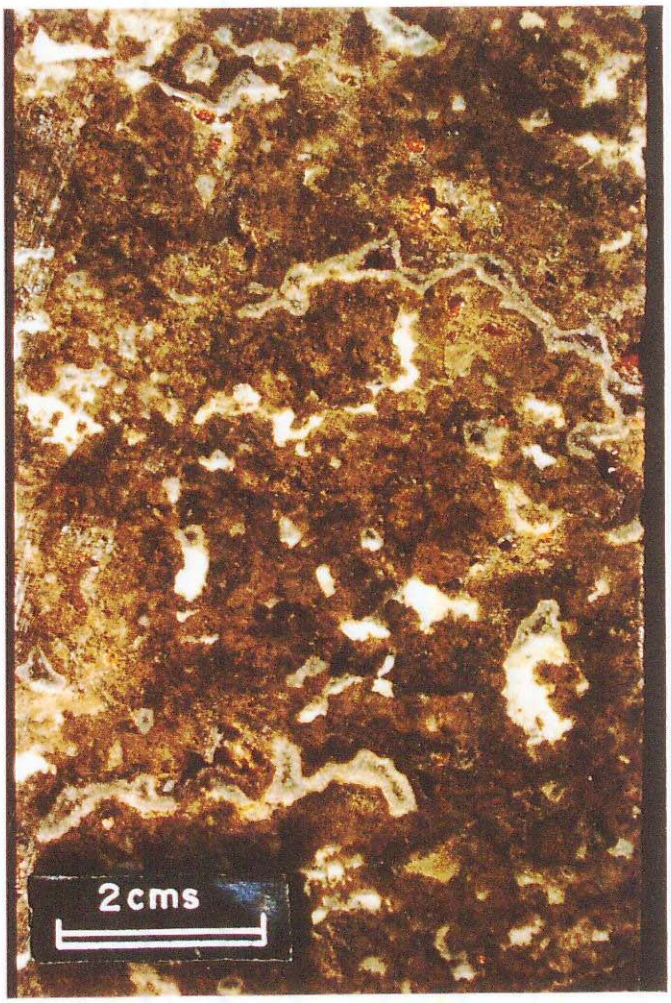
2

3



4

5



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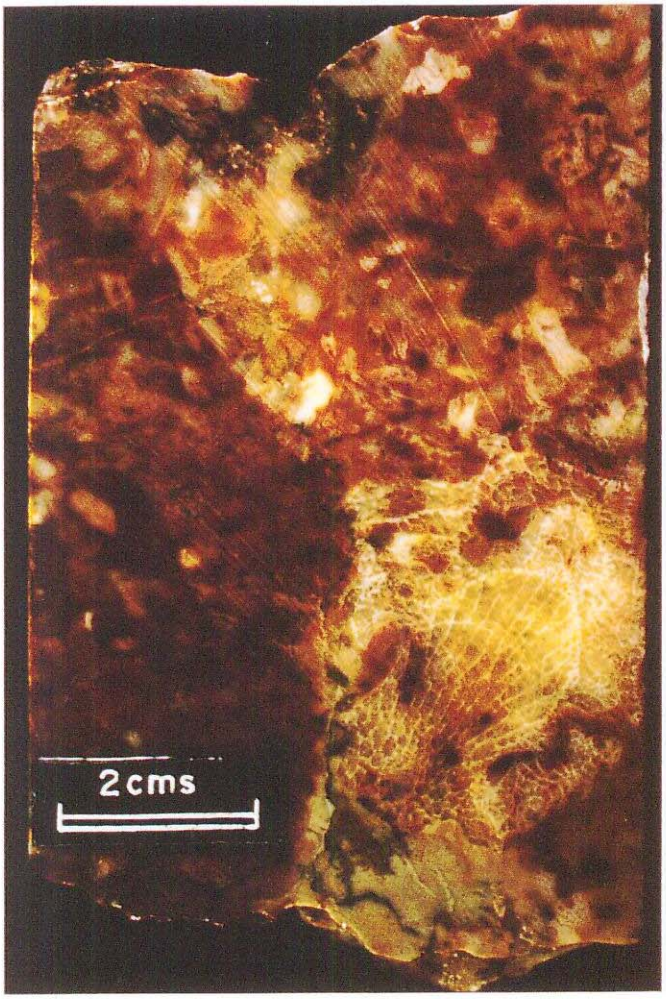

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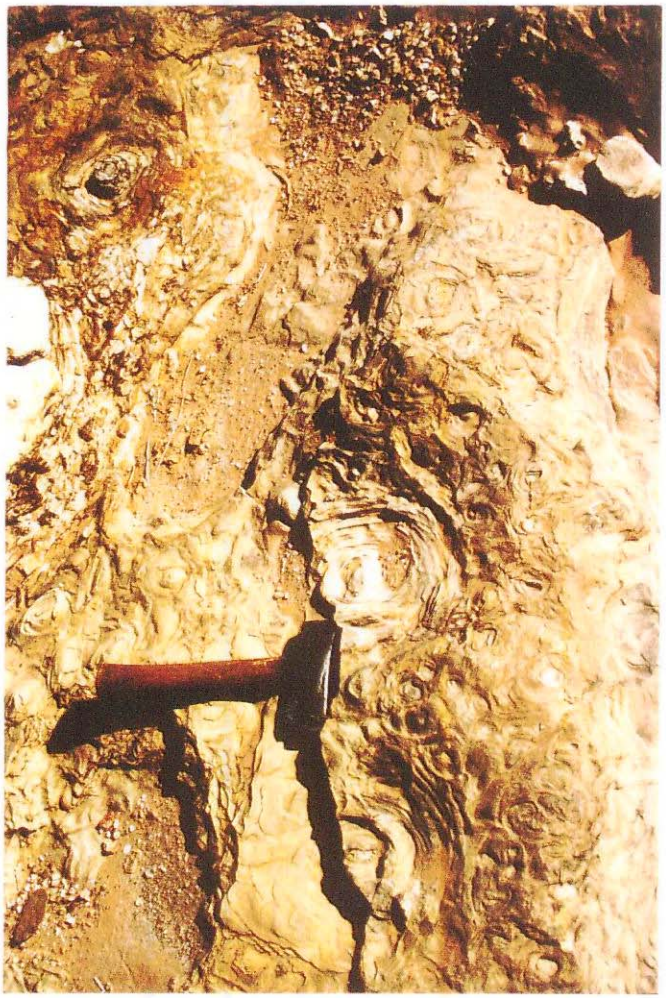

8

9

133° 135° 137° 139° 141°

28° 30° 32°

Oodnadatta

Cootanoorina 1 •

Weedina 1 •

Coober Pedy

Warriner Creek 1

OFFICER BASIN

WARBURTON BASIN

LAKE EYRE NORTH

LAKE EYRE SOUTH

STUART HIGHWAY

TORRENS HINGE ZONE

BIRDSVILLE TRACK

BILLA KALINA

CURDIMURKA

KINGOONYA

ANDAMOOKA

Marree

Lake Callabonna

PORT AUGUSTA

STUART SHELF

ADELAIDE GEOSYNCLINE

ARROWIE BASIN

LAKE FROME

ADELAIDE

0 400 KILOMETRES

LEGEND

Note : Sediments younger than Cambrian omitted

Cambrian sediments

Late Proterozoic sediments

Archaean to Middle Proterozoic basement

Boundary of Fig.3 (Plan No.90-195)

SCALE

KILOMETRES 40 0 40 80 120 KILOMETRES

Fig. 1

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA

EARLY CAMBRIAN OF THE STUART SHELF

LOCALITY AND REGIONAL GEOLOGY PLAN

COMPILED W. Cowley	19·6·90 C.D.O. DATE
DRAWN J. Gray	SCALE 1:2 500 000
DATE March 1990	PLAN NUMBER 90-194
CHECKED	

4999

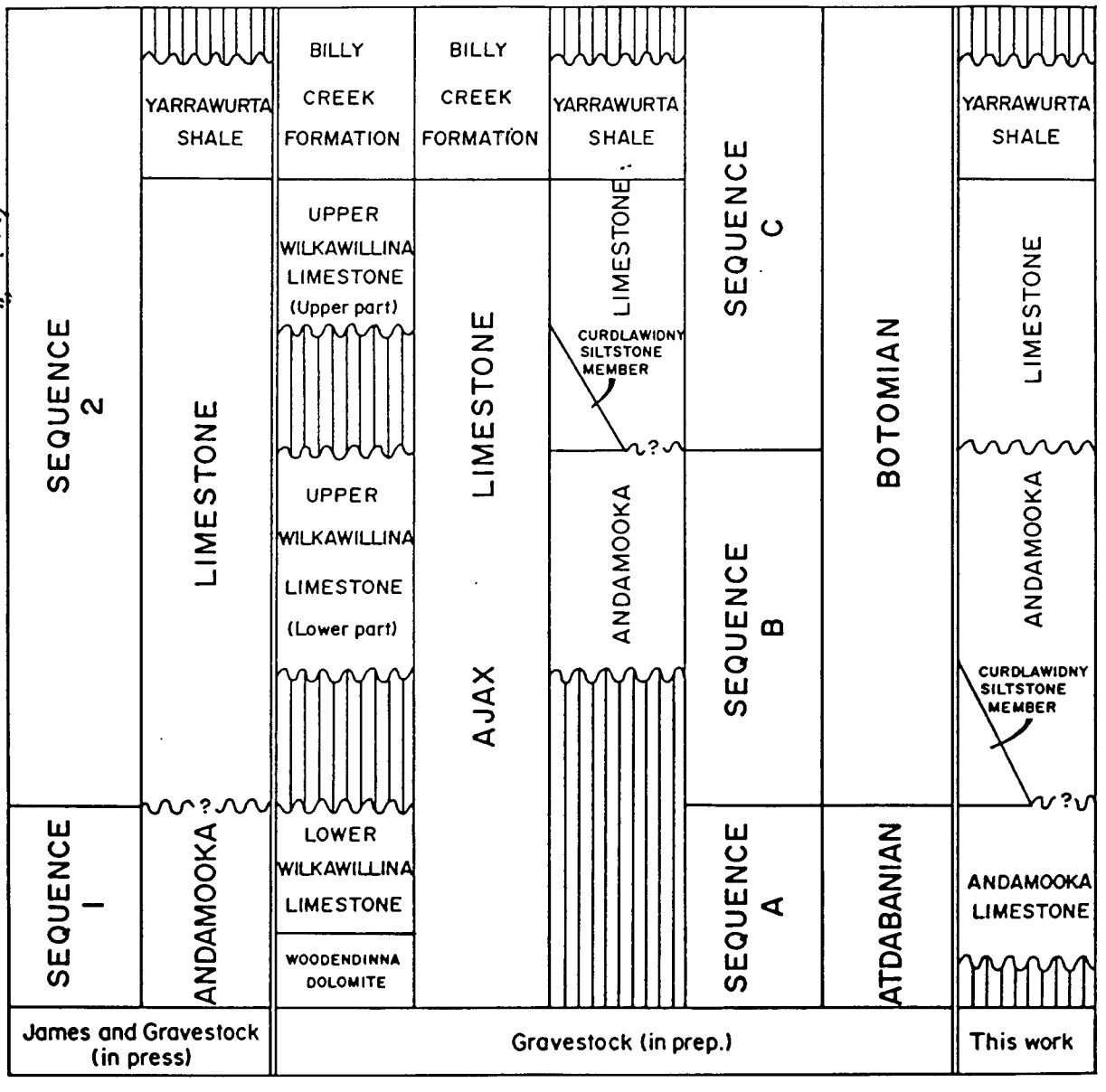

Fig. 2

DEPARTMENT OF MINES AND ENERGY
SOUTH AUSTRALIA

COMPILED W. Cowley | C.D.O. | 19·6·90 DATE

DRAWN J. Gray | SCALE

DATE March 1990 | CHECKED

PLAN NUMBER S 21488

EARLY CAMBRIAN OF THE STUART SHELF

STRATIGRAPHIC CORRELATION

4999

136°00' 136°30' 137°00' 137°30' 138°00'

30°00' 30°30' 31°00'

Newmont SR-6
WMC FHD-1
'Billa Kalina'
'Millers Creek'
'Lochs Well'
'Roxby Downs'
Andamooka
Olympic Dam
Roxby Downs
Koolymilka
Purple Downs
Stuart Creek Opalfield
O.K. Copper Mine
Yarra Wurta Cliff
Asarco Peninsula Prospect
Open Swamp
Watchie Swamp
Trig Hill Swamp
Devils Playground
Bamboo Swamp
Peephable Swamp
Curdlawidny Lagoon
Reedy Lagoon
Paralkylla
Red Lake
Lake Blanche
Mattawaara Lagoon
Lake Parakylia
Lake Reynolds
Lake Campbell
Lake Hanson
Koolymilka Lake
Coorlay Lagoon
Purple Lake
Red Swamp
Lake Mair
Mirage Lagoon
Shell Lagoon
Lake Pidlamimma
Lake Arthur
Wilaroo Lagoon
LAKE YOUNGHUSBAND
LAKE TORRENS
SP DH-4
SP DH-10
KS Peewana 1
KS Playford 1
KS Prices Bore 1
Shell RL-1
AS PRE-1
WMC BD-2
WMC BD-1
WMC SHD 1
AM SCYW 1
WMC TOD-1
WMC TOD-2
WMC TOD-3
WMC SGD-1
WMC SGD-6
WMC SGD-5
WMC SGD-2
WMC SGD-4
WMC BLD-4
WMC BLD-1
WMC BLD-3
WMC BLD-2
ME LTA-1
AA AND/RP 1-12
WMC RD-1
WMC HRD-1
WMC HRD-2
WMC HRD-3
WMC PD-2
WMC PD-3
WMC PD-1
WMC OFD-1
WMC OFD-3
WMC OFD-2
WMC WWD-1
WMC WRD-3
WMC WRD-4
WMC WRD-6
WMC WRD-2
WMC TWN-1
WMC TWN-2
WMC TWN-3
WMC ACD-4
WMC ACD-5
WMC ACD-10
WMC ACD-11
WMC ACD-9
WMC ACD-6
WMC ACD-8
WMC ACD-7
WMC ACD-3
WMC ACD-12
WMC RD-2
AS PPR-4B
AS PPR-5/SAP
AS PPR-7
AS PPR-6
DM P-2
DM P-3
DM P-9
DM P-8
DM P-7
DM P-4
DM P-5
DM P-6
CEC BDM-2
CEC BDM-1
CEC WB-01
Aquitaine SSR1001Q
WMC HHD-2
WMC HHD-1
WMC CRD-1
WMC CRD-2
WMC TD-3
WMC TD-2
WMC TD-1
ETSA LT6
ETSA LT7
ETSA LT8
ETSA LT3
ETSA LT4
ETSA LT10
ETSA LT9
ETSA LT 5
ETSA LT 11
ETSA LT 12

Inferred subsurface extent of Andamooka Limestone

Inferred subsurface extent of Curdlawidny Siltstone Member

Inferred subsurface extent of Yarrawurta Shale

LEGEND

- Late Palaeozoic - Recent cover
- Ey YARRAWURTA SHALE
- Ca ANDAMOOKA LIMESTONE
- Cac CURDLAWIDNY SILTSTONE MEMBER
- shaly grits and thin boulder beds
- P Adelaidean sediments
- Dip and strike
- Horizontal dip
- Bedding trend
- Fault
- 20 Isopachs of Cambrian sediments (metres)
- Drillhole intersecting Cambrian
- Drillhole in which Cambrian is absent

Drillholes : ME.....Mines Exploration Pty Ltd
AA.....Asarco (Aust) Pty Ltd
AM.....Amoco Minerals Australia Co.
CEC.....Carpentaria Exploration Co.Ltd
AS.....Australian Selection Pty Ltd
SP.....Stockdale Prospecting Ltd
Shell.....Shell Co. of Aust. Ltd
KS.....Kennecott Explorations (Pty) Ltd / Samedan Oil Corp.
DM.....Dampier Mining Ltd
WMC.....Western Mining Corporation
ETSA....Electricity Trust of S.A.

SCALE

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

Fig. 3

DEPARTMENT OF MINES AND ENERGY SOUTH AUSTRALIA

EARLY CAMBRIAN OF THE STUART SHELF
DRILLHOLE LOCATIONS AND ISOPACHS

COMPILED	W.Cowley	19-6-90 C.D.O.	DATE
DRAWN	J.Gray	SCALE	1:250 000
DATE	April 1990	PLAN NUMBER	90-195
CHECKED			

4999