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SHALLOW STRATIGRAPHIC DRILLING, BOWEN AND
GREAT ARTESIAN BASINS, 1964.

by

(R.G. Mollan, N.F. Exon, V.R. Forbes*
[*Geological Survey of Queensland].)

The information contained in this report has been obtained by the Department of National Development, as part of the policy of the Commonwealth Government, to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

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SHALLOW STRATIGRAPHIC DRILLING, BOWEN AND
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The Eddystone Party supervised the drilling of 25 shallow holes (3794 feet of drilling and 342 feet of coring) for stratigraphic information in the Tambo, Springsure, Eddystone, Taroom, and Mundubbera 1:250,000 Sheet areas from the 13th to the 28th October, 1964. The contractors, Geophysical Service International, used a truck-mounted Mayhew 1000 rig with an air compressor. 300 feet of drill stem, a core barrel (14 feet long), a diamond core bit, and equipment for drilling with mud were available.

The project was marred by unseasonal rain which caused the rig to be bogged on several occasions, and by mechanical failure of the water truck which had to be abandoned at Springsure.

The holes were drilled with the following aims:-

- (1) to obtain lithological information of poorly exposed formations
- (2) to intersect formation boundaries
- (3) to obtain palynological material
- (4) to obtain fresh cores of beds suspected of containing phosphate

In most cases the holes were successful in achieving one or more of these aims. Rocks from Lower Permian to Lower Cretaceous age were penetrated during the project.

All the holes except one were drilled with air; Tambo B.M.R.³² was drilled with mud. Samples of cuttings were taken over ten foot drilling intervals. When drilling with air a piece of piping was set over the hole to minimise contamination of cuttings. Cuttings collected from the hole drilled with mud had to be immediately washed and dried before bagging otherwise they were reduced to a glutinous mass. A considerable amount of time is required for the washing and drying processes which makes drilling with mud undesirable. Air drilling is successful in holes where water is struck only if there is sufficient water to regularly flush the hole. The cuttings and cores were logged with a binocular microscope.

The holes are referred to as Tambo B.M.R. Nos. 32 to 36, Springsure B.M.R. Nos. 37 to 44, Eddystone B.M.R. Nos. 45, and 47 to 53, Taroom B.M.R. Nos. 46 and 54, and Mundubbera B.M.R. Nos. 55 and 56.

Two sets of cuttings were collected; one set is stored at the B.M.R. Core and Cuttings Laboratories at Fyshwick, Canberra, and the other set is stored at the Geological Survey of Queensland, Brisbane. The cores are stored at the B.M.R. Core and Cuttings Laboratories; small representative samples of the cores are stored at the Geological Survey of Queensland.

Much of the stratigraphic information gained from the drilling is referred to in Exon and Kirkegaard (1965), Mollan, Exon and Kirkegaard (in prep.), and Mollan, Jensen, Forbes, Exon, and Gregory (in prep.). Evans (in prep.) discusses the palynological results of the drilling. The results of assays for phosphate of cores from Mundubbera B.M.R. Nos. 55 and 56 holes are not yet to hand.

The accompanying table presents a summary of the drilling. Lithological logs of most of the holes are presented with a lithological reference and locality diagram.

REFERENCES

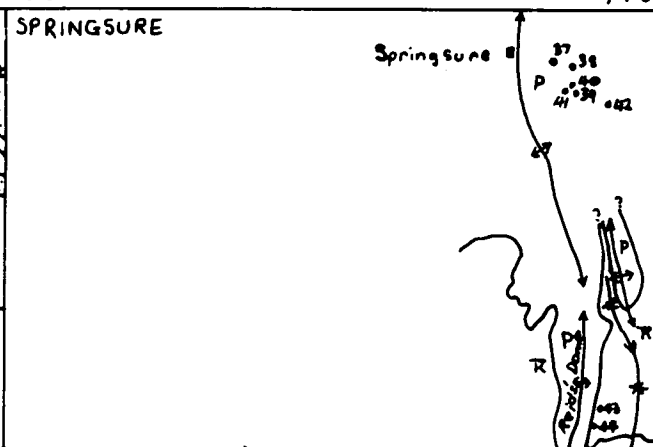
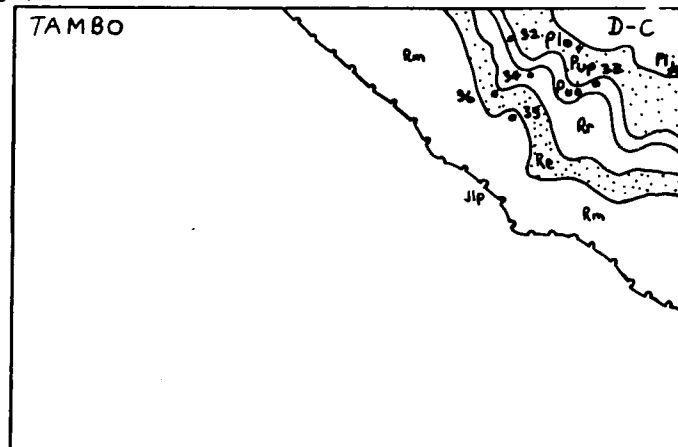
- EVANS, P.R., in prep. - Palynological studies in the Longreach, Jericho, Galilee, Tambo, Eddystone, Taroom, and Springsure 1:250,000 Sheet areas. Bur. Min. Resour. Aust. Rec.
- EXON, N.F., and KIRKEGAARD, A.G., 1965 - Notes on the stratigraphy of the north-east part of the Tambo 1:250,000 Sheet area. Bur. Min. Resour. Aust. Rec., 1965/90
- MOLLAN, R.G., EXON, N.F., and KIRKEGAARD, A.G., in prep. - The geology of the Springsure 1:250,000 Sheet area, Queensland. Bur. Min. Resour. Aust. Rep.
- MOLLAN, R.G., JENSEN, A.R., FORBES, V.R., EXON, N.F., and GREGORY, C.M. in prep. - The geology of the Eddystone and Taroom 1:250,000 Sheet areas and the western part of the Mundubbera 1:250,000 Sheet area, Queensland. Bur. Min. Resour. Aust. Rep.

Drill Hole No.	Property (air photo set/run/photo No.)	Total Depth (feet)	Drilling (feet)	Cuttings Samples Intervals	Coring (feet)	Core Intervals	Recovery of core	Remarks
TAMBO BMR 32	Durrandella (Tambo/Run 1 Photo 5073)	245	231	0-180 (10' samples), 180-185, 199-210, 210-240, (10' samples), 240-245.	14	185 - 199	9'5"	drilled with mud
TAMBO BMR 33	Alpha (Tambo/2A/5067)	180	166	0-80 (10' samples), 94-100, 100-180 (10' samples)	14	80-94	12'.0"	correct sequence of core fragments not known
TAMBO BMR 34	Alpha (Tambo/2A/5069)	215	201	0-140 (10' samples), 154-160, 160-210 (10' samples 210-215)	14	140-154	14'9"	water at 122'
TAMBO BMR 35	Skye (Tambo/3/5029)	306	278	0-210 (10' samples), 210-215, 229-240, 240-290 (10' samples) 14	14	215-229 (core 1) 292-306 (core 2)	10'9" 13'2"	water at 292'
TAMBO BMR 36	Mitchell Highway (Tambo/3/5027)	169	155	0-150 (10' samples), 150-155.	14	155-169	13'11"	
SPRINGSURE BMR 37	Oaky Creek (Springsure North/1/5123)	200	186	0-80 (10' samples), 94-194 (10' samples), 194-200 no recovery 114-124	14	80-94	13'2"	water at 95' (small supply) and 124' (good supply) 93' coal
SPRINGSURE BMR 38	Moorooloo (Springsure North/1/5125)	200	200	0-200 (10' samples)				
SPRINGSURE BMR 39	Springsure-Rolleston Road (Springsure North/2/5010)	30	30	0-30 (10' samples)				abandoned because of hard drilling in basalt (no lithological log presented)
SPRINGSURE BMR 40	" "	20	20	0-20 (10' samples)				abandoned because of hard drilling in basalt (no lithological log presented)
SPRINGSURE BMR 41	" "	200	190	5-10, 10-120 (10' samples), 120-125, 135-195 (10' samples), 195-200	10	125-135	10'0"	good supply of water 110'

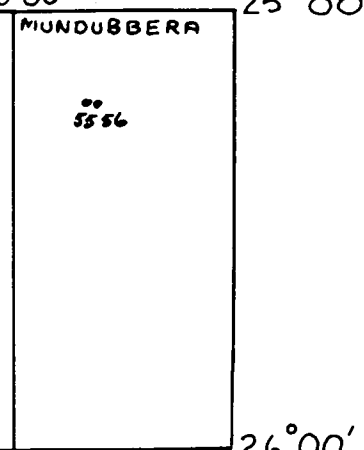
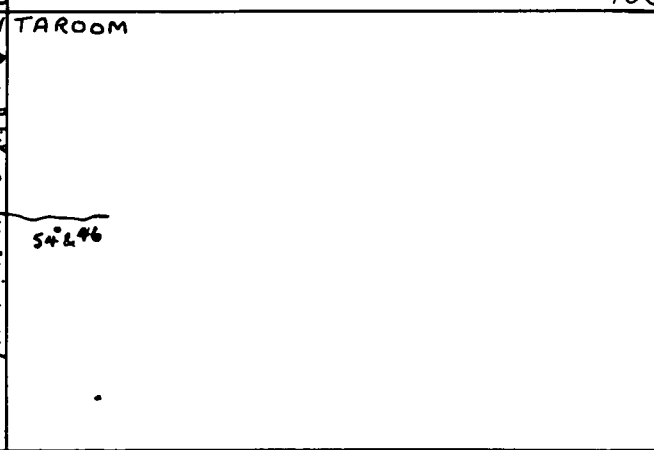
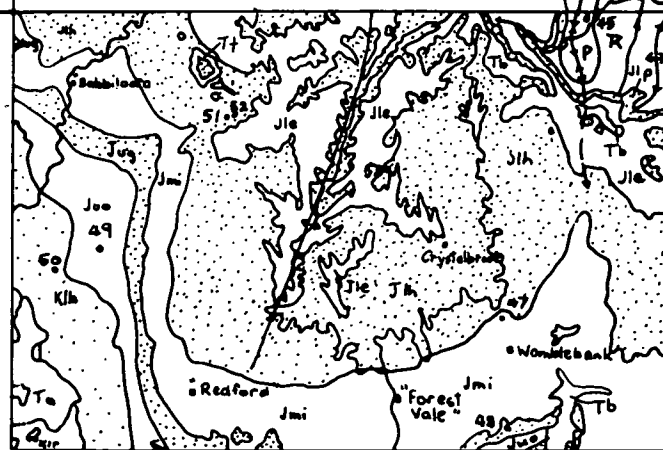
SPRINGSURE BMR 42	Springsure-Rolleston Road (Springsure North(3/5006)	95	95	0-90 (10' samples), 90-95				
SPRINGSURE BMR 43	Serocold (Springsure) (4/5231)	10	10					abandoned because of hard drilling in "billy", (no lithological log presented)
SPRINGSURE BMR 44	Unnamed -new block of Consuelo (Springsure/4/5231)	334	310	10-110 (10' samples), 120-320 (10' samples)	10 14	110-120 (core 1) 8'0" 320-334 (core 2) 13'0"		
EDDYSTONE BMR 45	Ingelara (Eddystone/1/5009)	155	145	0-80 (10' samples), 90-150 (10' samples), 150-155	10	80-90	9'10"	
TAROOC BMR 46	Carnarvon Highway (Taroom/5/5006)	334	270	0-70 (10' samples), 84-85, 97-110, 110-140 (10' samples), 140-145, 169-180, 180-320 (10' samples).	14 12 14 10 14	70-84 (core 1) 10'2 $\frac{1}{2}$ " 85-97 (core 2) 10'9 $\frac{1}{2}$ " 145-159 (core 3) 11'10 $\frac{1}{2}$ " 159-169 (core 4) 8' 0" 320-334 (core 5) 13'10"		
EDDYSTONE BMR 47	Womblebank (Eddystone/6/5131)	215	205	0-110 (10' samples), 120-210, 210-215	10	110-120	9'8"	coal 109', minor seams 130'-140'; water at 215'
EDDYSTONE BMR 48	Tooloombilla (Eddystone/9/5126)	200	190	0-90 (10' samples), 90- 95, 105-110, 110-200 (10' samples)	10	95-105	10'6"	too wet to drill with air below 200'
EDDYSTONE BMR 49	Hoganthulla (Eddystone/5/5008)	240	230	0-120 (10' samples), 130- 240 (10' samples)	10	120-130	9'0"	abandoned in soft caving sand
EDDYSTONE BMR 50	Hoganthulla (Eddystone/6/5105)	250	240	0-100 (10' samples), 110- 250 (10' samples)	10	100-110	10'6"	traces of coal 76' and 165'
EDDYSTONE BMR 51	Attica (Eddystone/3/5133)	180	163	0-70 (10' samples), 70-75, 82-90, 90-170 (10' samples)	7 10	75-82 (core 1) 6'5" 170-180 (core 2) 8'10 $\frac{1}{2}$ "		too wet to drill with air below 180'
EDDYSTONE BMR 52	" "	25	15	0-10, 10-15	10	15-25	7'5 $\frac{1}{2}$ "	
EDDYSTONE BMR 53	Darkwater (Eddystone/4/5179)	130	96'6"	0-30 (10' samples), 40- 100 (10' samples), 100-101, 124'6"-130'	10 10 13'6"	30-40 (core 1) 8'11" 101-111 (core 2) 9'7 $\frac{1}{2}$ " 111-124'6" (core 3) 11'8 $\frac{1}{2}$ "		too wet to drill with air below 130'

TAROOM BMR 54	Carnarvon Highway Taroom/5/5006)	69	46	No cuttings	14 9	46-60 (core1) 60-69 (core2)	9'8" 4'9½"	adjacent to TAROOM BMR 46
MUNDUBBERA BMR 55	Gyranda (Mundubbera/2/21)	59	50	0-50 (10' samples)	9	50-59	6'6"	(No lithological log presented)
MUNDUBBERA BMR 56	Gyranda (Mundubbera/2/21)	175	171'6"	0-30 (10' samples), 30-35, 38'6"-40, 40-170 (10' samples), 170-175	3'6"	35-38'6"	2'6"	(" " " " abandoned because of hard drilling and damaged tools

145°30' 147°00' 148°30' 24°00'



LOCATIONS OF STRATIGRAPHIC
DRILL HOLES IN RELATION TO
OUTCROPS OF MAIN ROCK UNITS



EDDYSTONE

- Tt Tabor Gabbro
- Tb Tertiary basalt
- Ta Tertiary sediments
- Klr Roma Fm
- Klb Blythesdale Fm
- Juo Orallo Fm
- Jug Gubberamunda Ss
- Jmi Injune Creek Beds
- Jlh Hutton Ss
- Jle Evergreen Fm
- Jlp Precipice Ss
- Rm Moolayember Fm
- Re Clematis Ss
- Rr Rewan Fm
- R Triassic undiff.
- Pua Bandanna Fm
- Pup Peawaddy Fm
- Plo Colinya Ss
- Plj Reid's Dome Beds
- P Permian undiff.
- D-C Mainly pre-Permian rocks

REFERENCE FOR LITHOLOGICAL LOGS

SANDSTONE

	grain	size	composition
	very fine	0.06 - 0.12 mm	Quartzose sandstone - Qtz forms >90% of Qtz + Labile clasts
	fine	0.12 - 0.25 mm	Sublabile (feld, lithic) - " 75-90% " "
	medium	0.25 - 1.0 mm	Labile (feld. -> lithic) - " <75% " "
	coarse	1.0 - 2.0 mm	

CONGLOMERATE

	granule	2.0 - 4.0 mm
	pebble	4.0 - 64.0 mm
	cobble	64 - 256 mm
	boulder	>256 mm

Siltstone

Shale

Mudstone

Claystone

Coal

BEDDING STRUCTURE

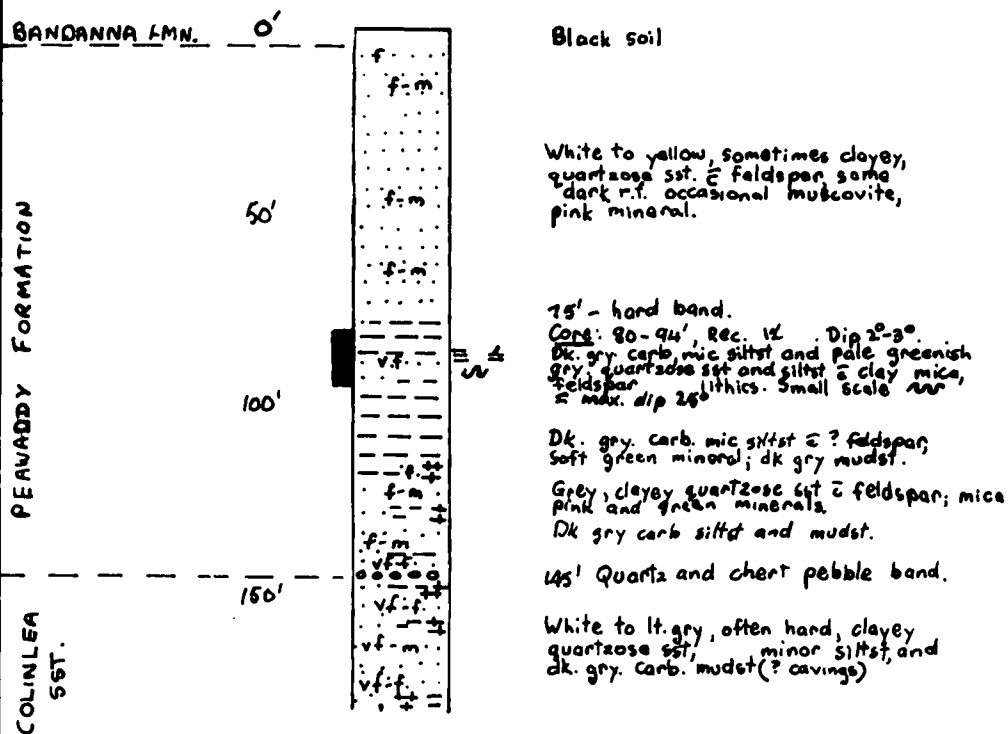
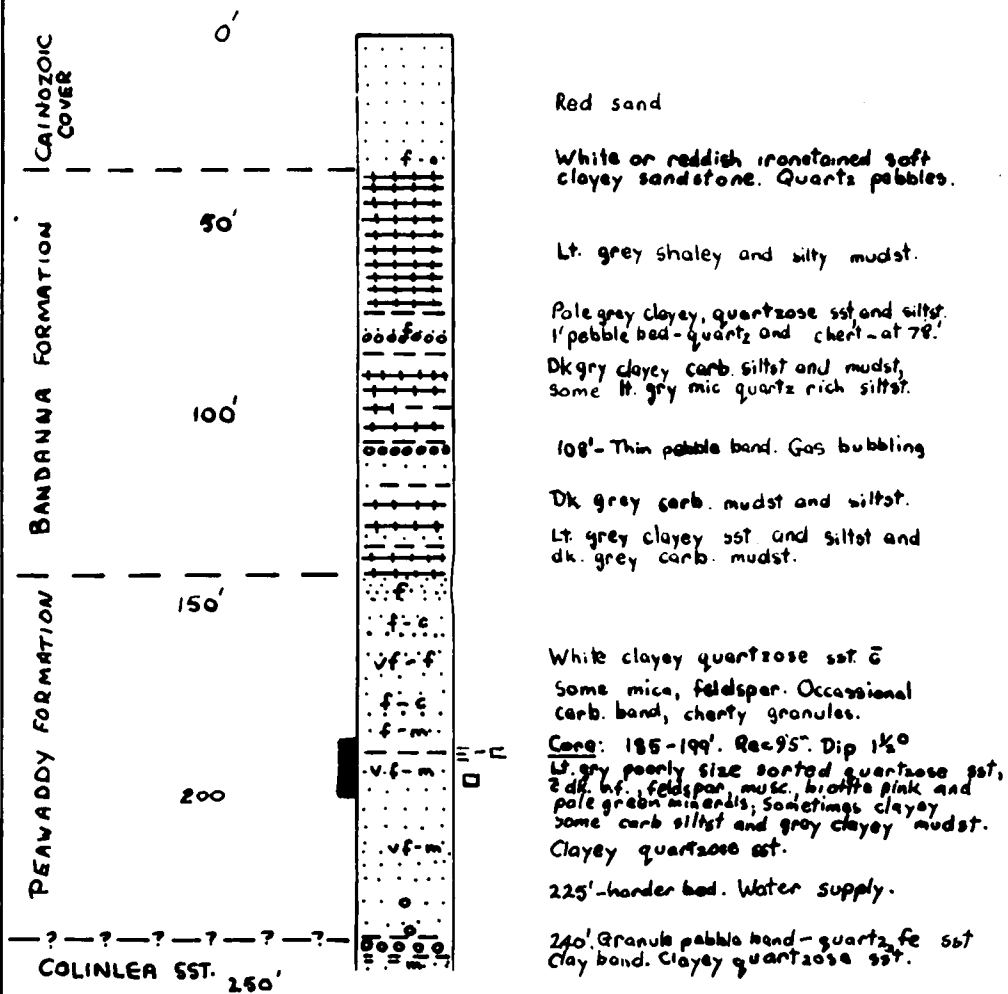
	thick	40 - 12 in.
	medium	12 - 4 in.
	thin	4 - 0.4 in.
	laminar	<0.4 in.
	cross-bedded	
	cross-laminated	
	slumped	
	burrows	

OTHER SYMBOLS

	Shelly fossil
	Plant fossil
	Calcareous bed/lens
	Oolitic or pelletal ironstone

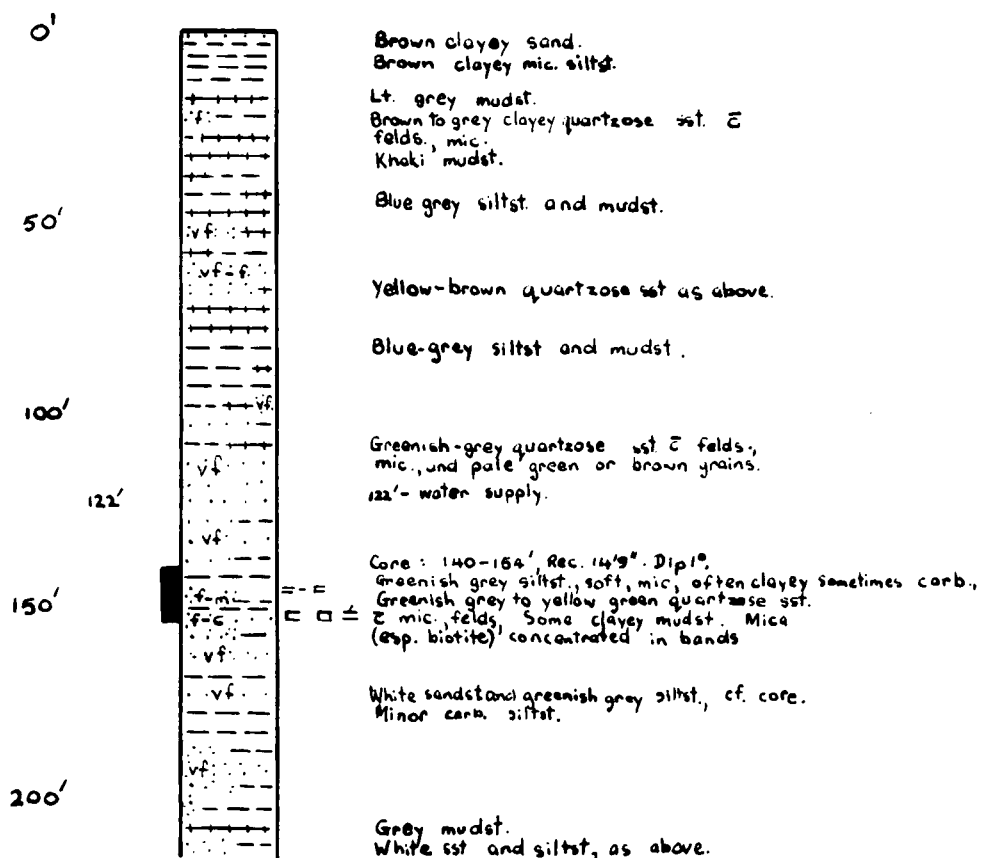
ABBREVIATIONS

arg	argillaceous
c	with
calc	calcareous
carb	carbonaceous
clayst	claystone
fe	ferruginous
HM	heavy minerals
gr	grained
lab	labile
mic	micaceous
mudst	mudstone
qose	quartzose
rec	recovery (of core)
rf & RF	rock fragments
si	siliceous
siltst	siltstone
sst & ss	sandstone
sublab	sublabile



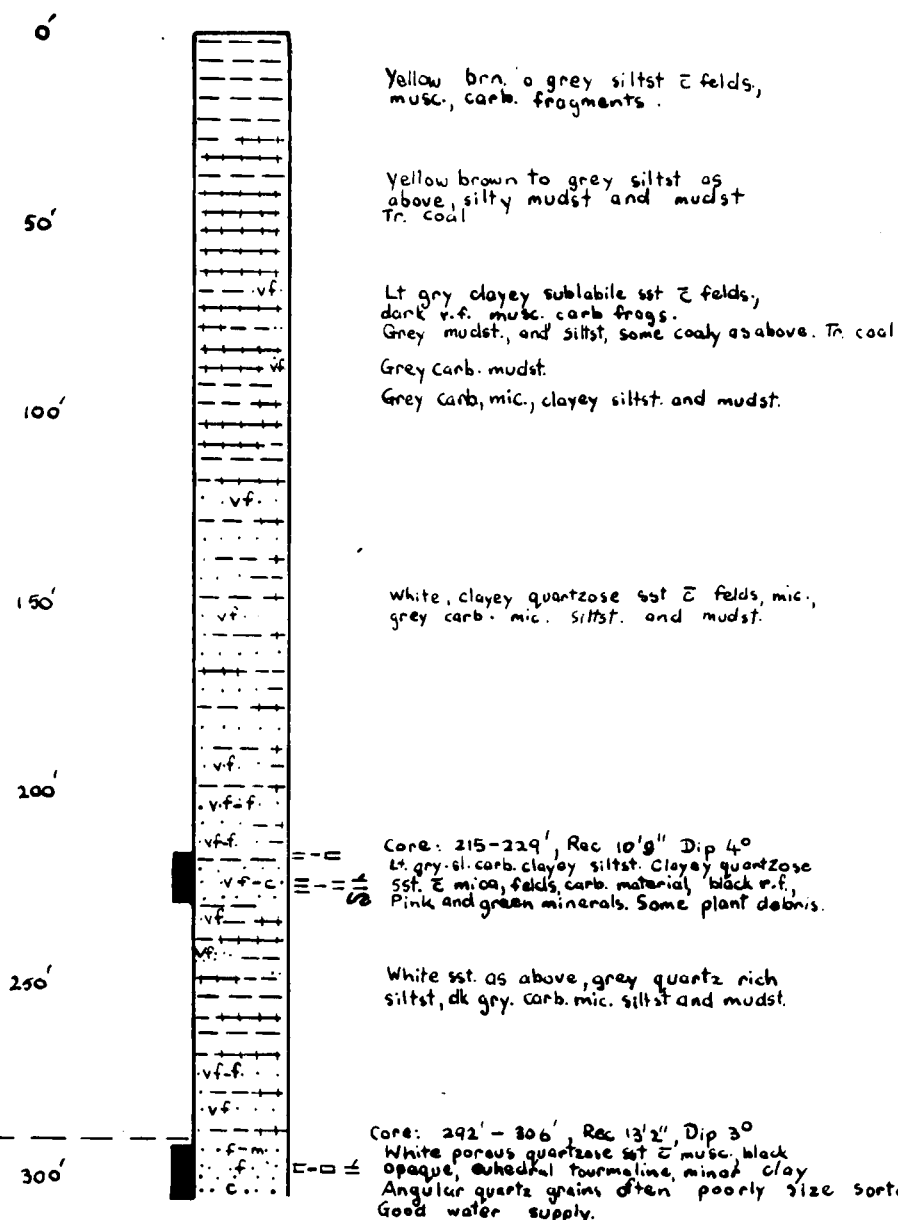
TAMBO BMR 34

REWAN FORMATION



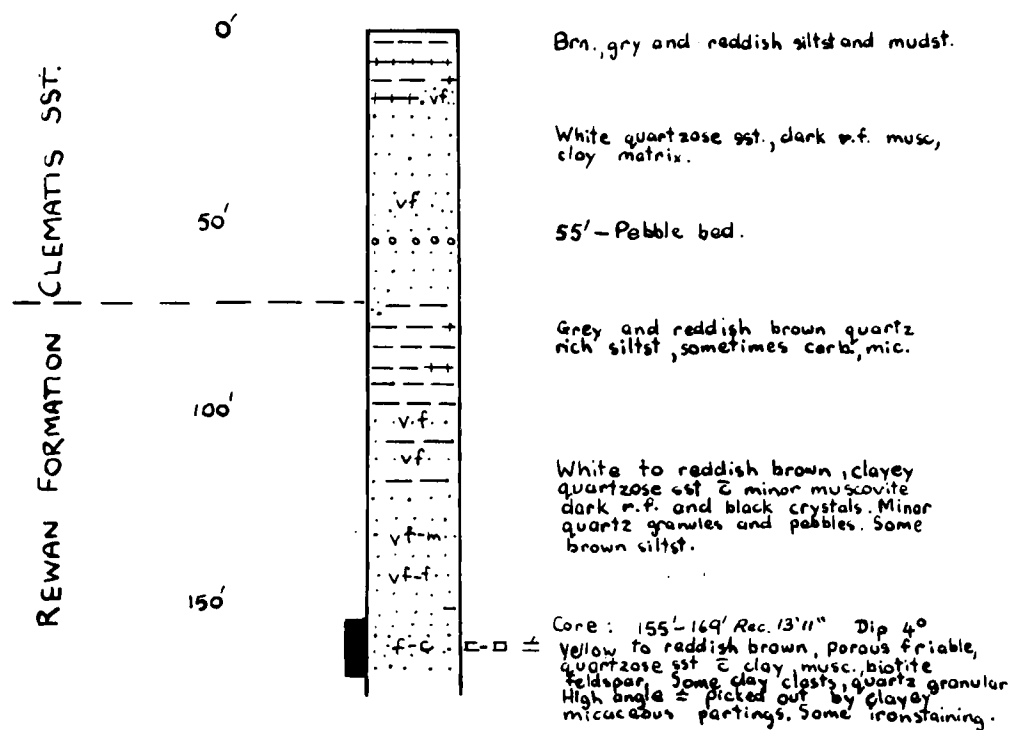
TAMBO BMR 35

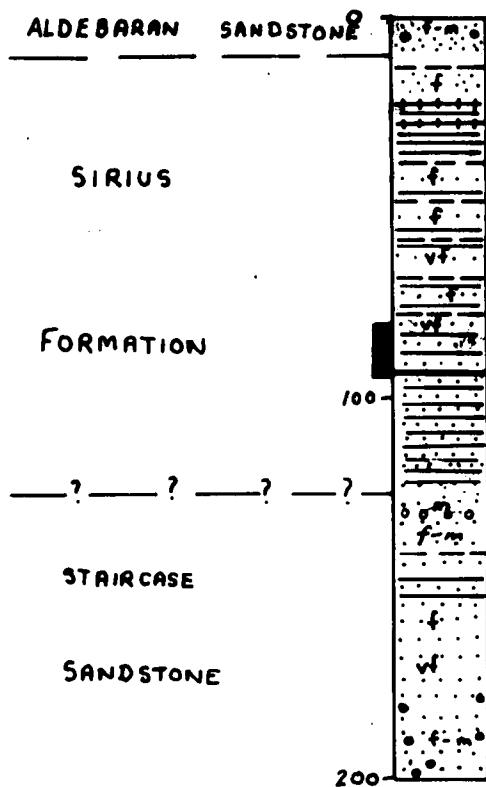
MOOLAYEMBER FORMATION



CLEMATIS
SST.

TAMBO BMR 36





quartzose, minor kaolin.

black mudst/shale, coaly grains, mic, floating sand grains; sublabile sst.

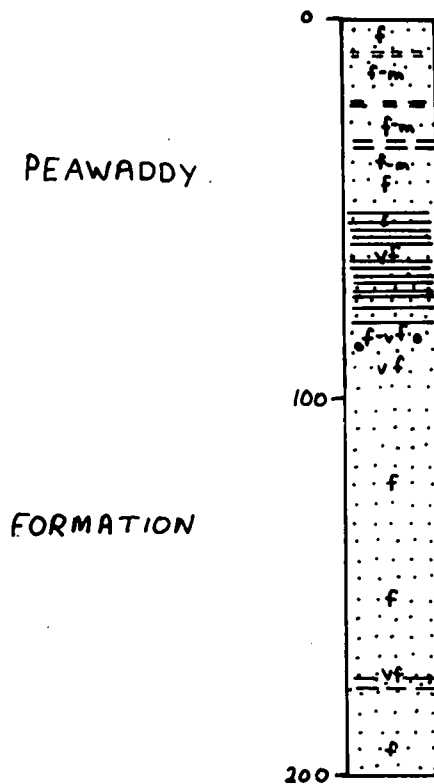
intercalated black shale and sst, coaly, mic, plant debris, ? rootlets in core, thin coal seam at 94' (water at 95' - subartesian)

(good supply of water at 124')

quartzose, intercalations coaly siltst. Arkonic - feldspathic? kaolinic?

sublabile sst, mic - coaly interlaminae

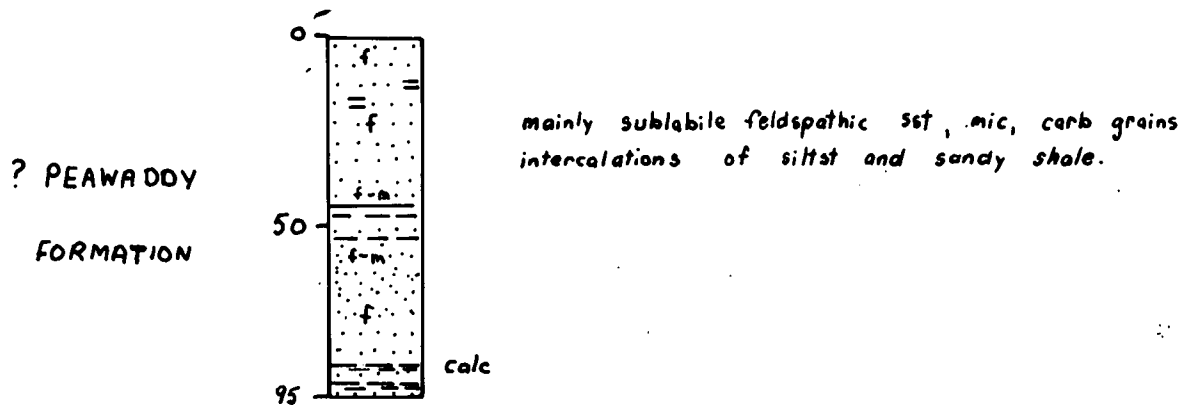
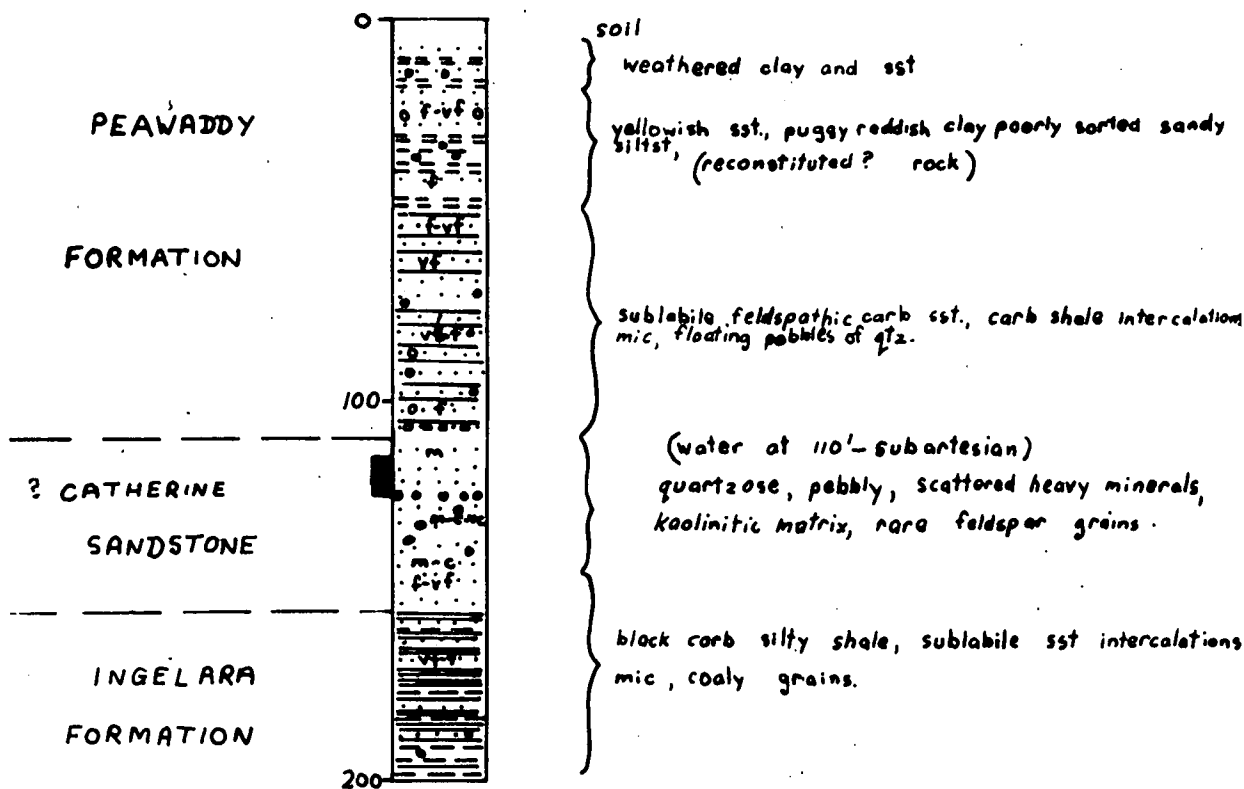
quartzose sst, mic, coaly grains, feldspar.



quartzose to sublabile sst, puggy clayst, sandy clay.

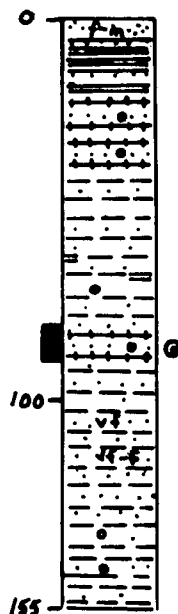
intercalated black coaly silty shale, and sublabile sst, mic, coaly grains.

mainly sublabile (feldspathic) sst, carb, limonitic, mic, some silty sst, green (? glauconite) grains.



EDDYSTONE BMR 45

INGELARA
FORMATION

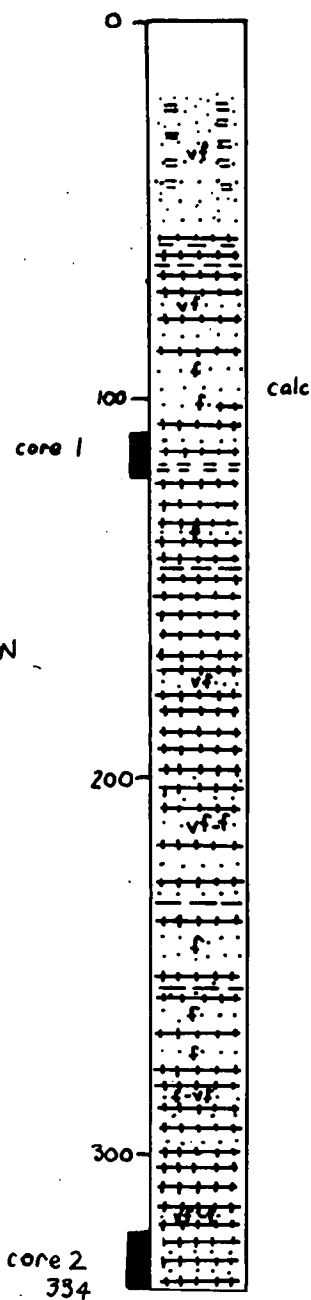


weathered dark green shale, some lithic sst.

black silty gypsiferous mudst and mic siltst with floating sand grains, pebbles and marine shells; sandy lenses; much carb and coaly material throughout.

SPRINGSURE BMR 44

REWAN
FORMATION



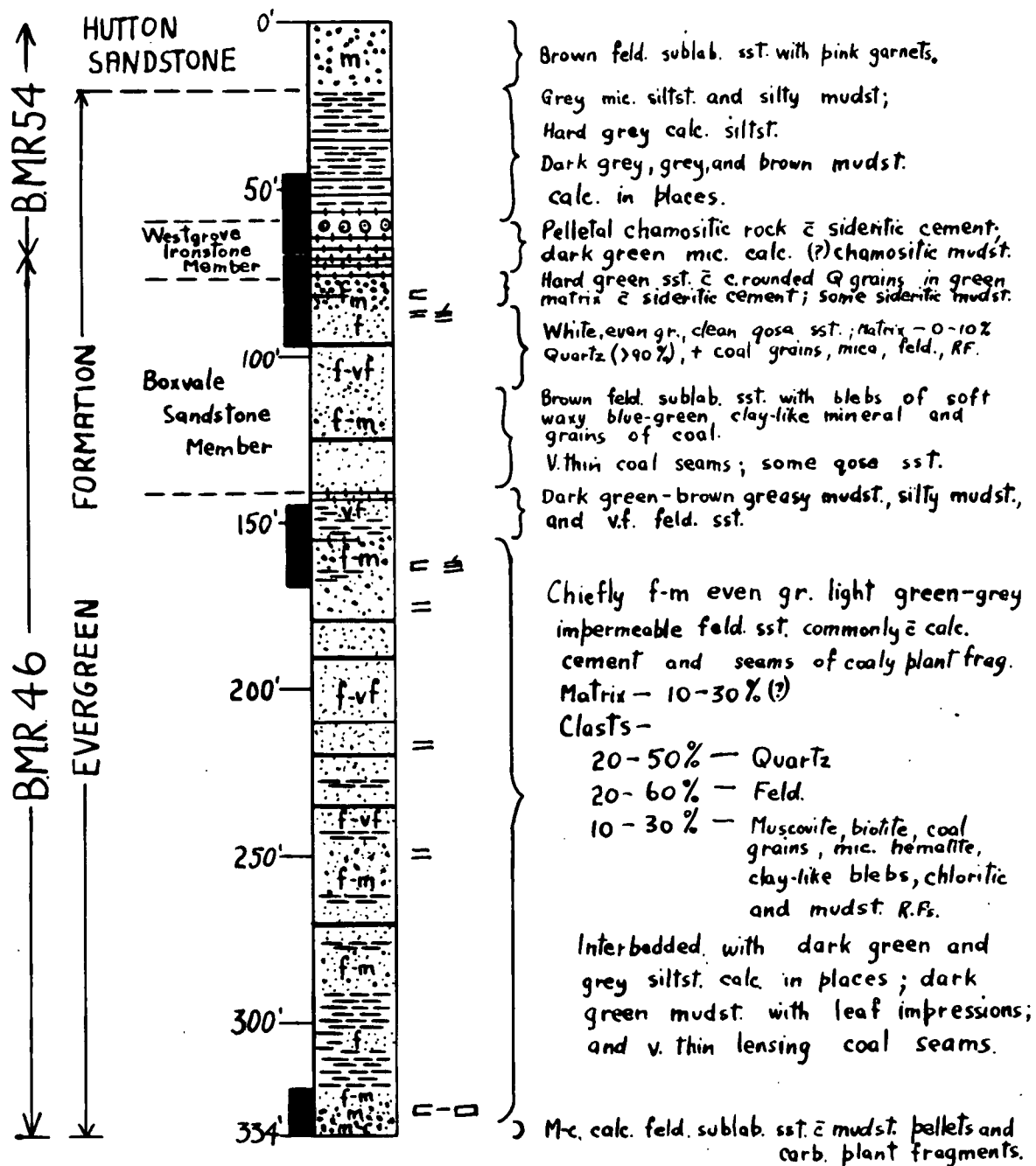
soil and clay

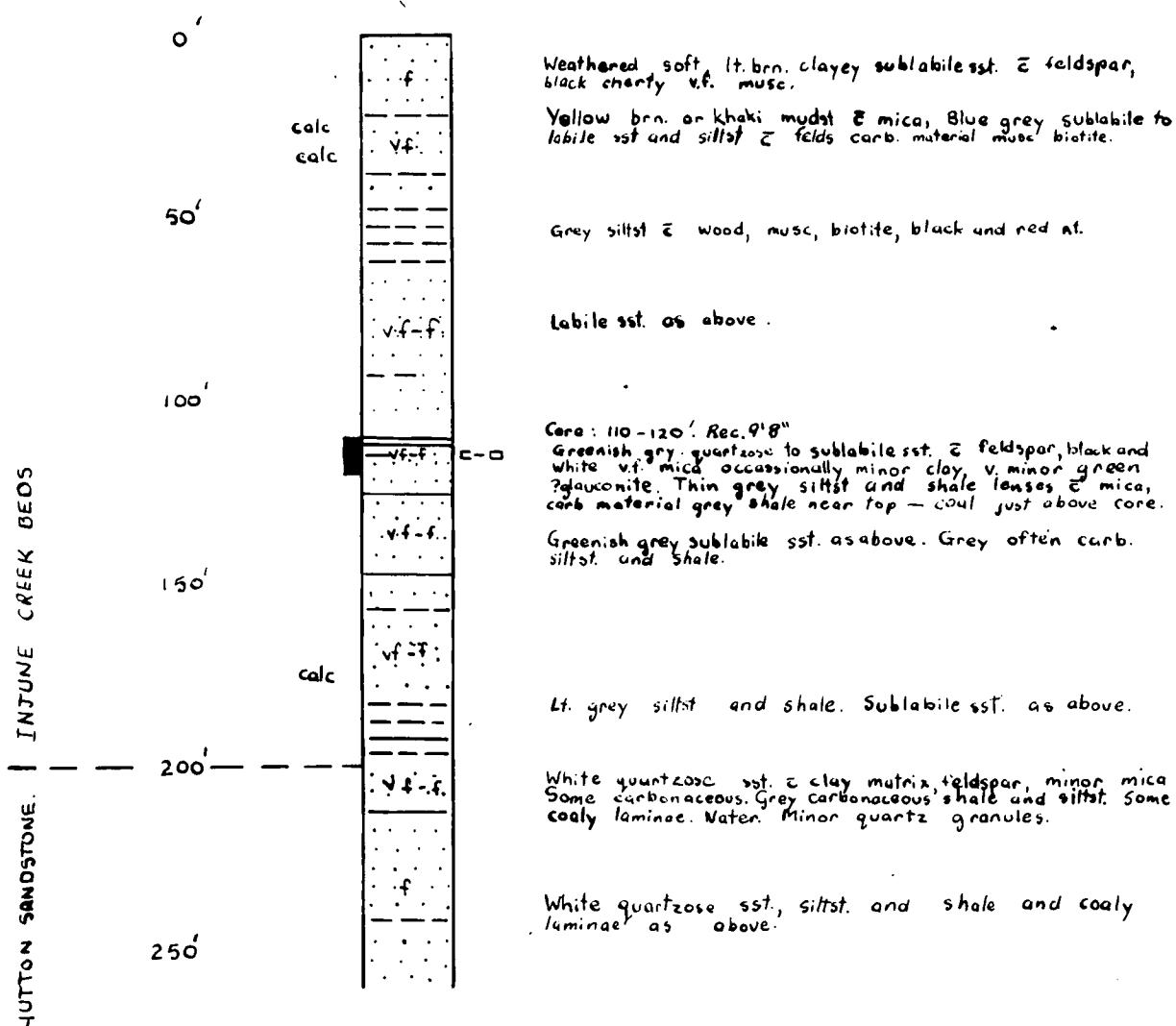
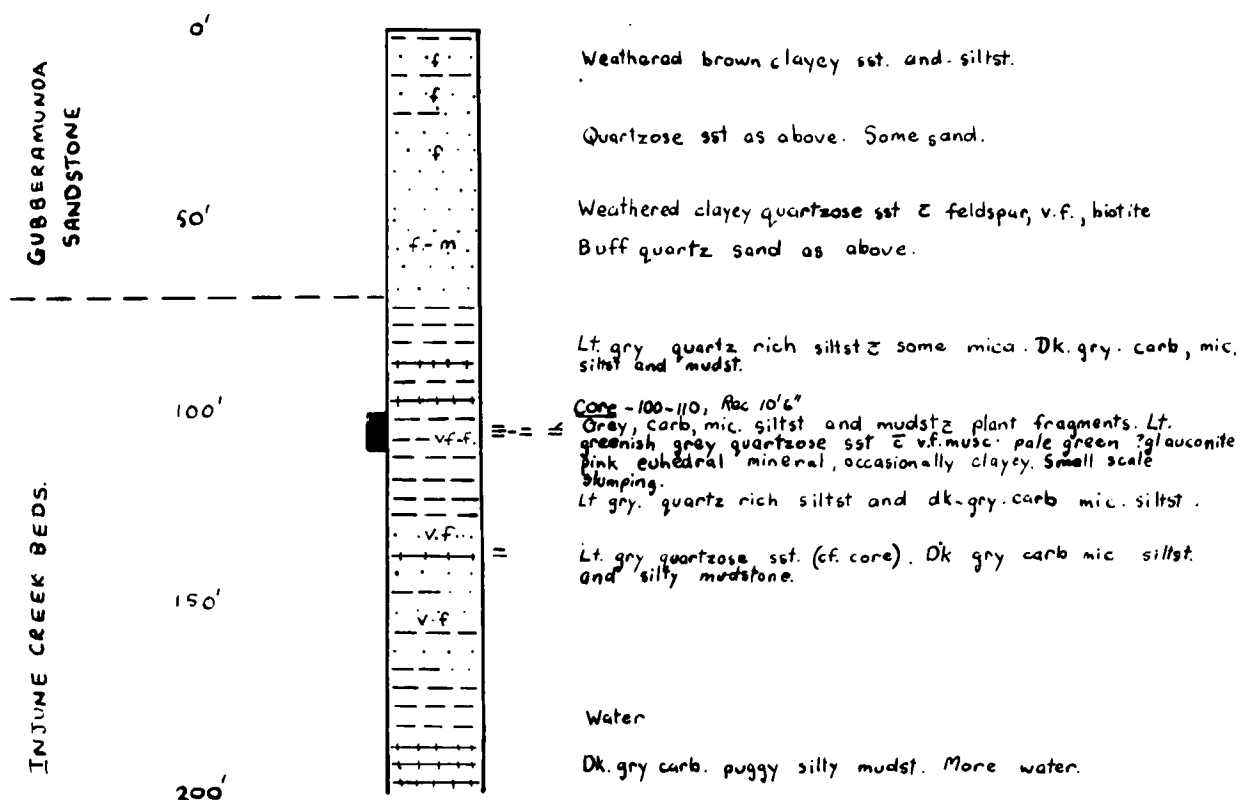
weathered clayey sst.

mainly deep purplish red and olive green mic silty mudst. commonly hard and dense, interbeds of litho-feldspathic sst. with ? glauconite grains, minor clayst. In core 2 some carbonaceous grains.



TAROOM BMR 46 and BMR 54 (DRILLED AT SAME SPOT)





Eddystone BMA 49

ORALLO FORMATION

0'
50'
100'
150'

calc

calc

Weathered brn. often ironstained clayey sst. Quartz and ferruginised pebbles and granules.

Dk. gry. mic. carb. silty mudst. Lt. gry. v.f. clayey quartzose sst. and siltst.

Dk. gry. carb. siltst and mudst.

Very f. soft, offwhite quartzose sst. Some muscovite, biotite.
Dk. gry. carb siltst and mudst

v.f., offwhite, quartz rich siltst.
Lt. gry. quartz rich siltst & mica and carb. fragments
Sometimes white clay matrix ± picked out by dark biotite carb. rich layers.

Lt. gry. quartz rich carb. mic. siltst, Some dark gry carb mic siltst, and silty mudst.

GUBBERMUNDA SANDSTONE

200'

v.f.
f.
f-m

v.f. white to lt. gry. quartzose to felds. sublabile sst. & clay matrix muscovite soft green ? glauconite. Derived sand. Some dark gry siltst.

Eddystone BMR 50

BLTHESDALE FORMATION

0'
50'
100'
150'
200'

m-c.
m-c.

f-m
m-c

White or ironstained clayey quartzose sst & feldspar. Lt. gry clayey siltst and some mudst.

White quartz sand & feldspar black chert v. minor pink mineral. Subangular grains.

Grey, often carb, mic. siltst and silty mudst.

Grey carb mic siltst, often clayey. Some brown harder. ? silic. lenses, coarser. Minor v.f. clayey sand. Lenses & pale green ? glauconite. (max dip 20°) Microfaults. Much contemporaneous slumping. Some v. clayey grey mudst.

Grey siltst and dk gry sl. carb silty mudst.

Soft grey v.f. quartzose sst. & biotite musc., felds.

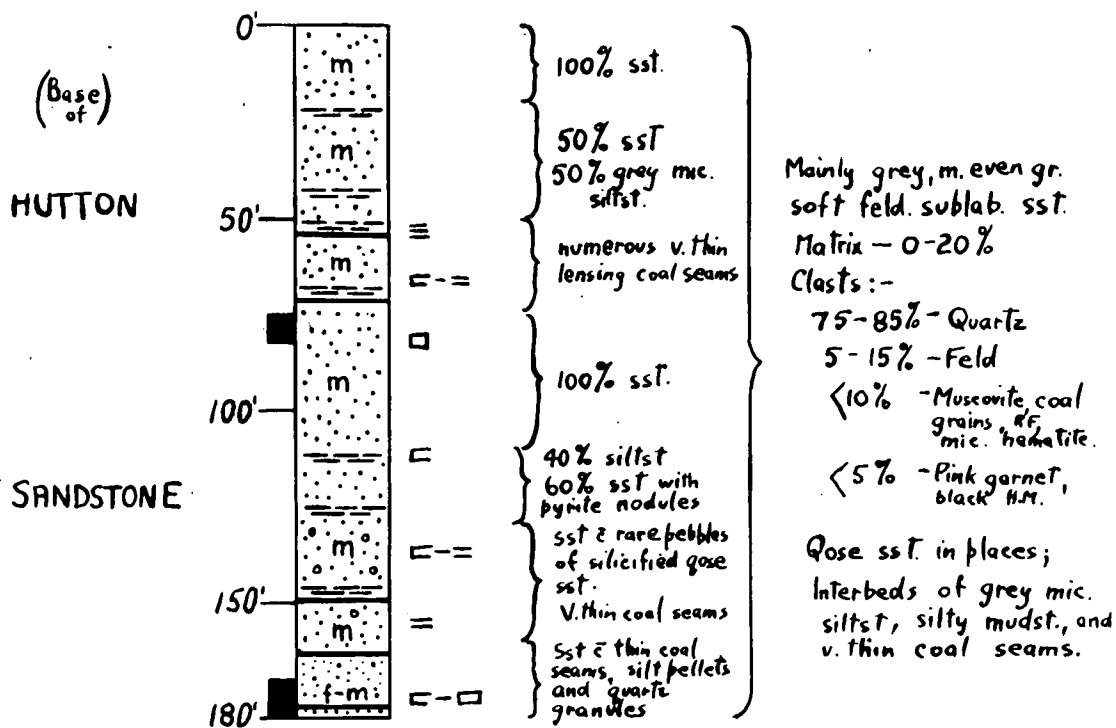
Dk gry sl. carb silty mudst.

Quartzose sst. as above.

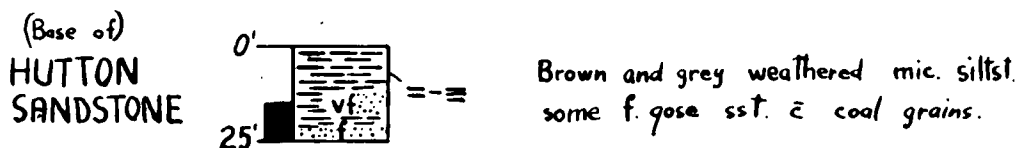
Dk. gry sl. carb. silty mudst and minor gry siltst.

Soft grey quartzose sst & felds, biotite, musc.

EDDYSTONE BMR 51



EDDYSTONE BMR 52



EDDYSTONE BMR 53

