

W402

DEPT. NAT. RES & ENV



PE904131

FORSTERS BORE

(G.B)

WELL SUMMARY

(ONSHORE)

2/10/36

W402

REPORT ON FOUR SAMPLES OF GLAUCONITE

FROM

AUSTRAL OIL WELLS, NO. 1 (FOSTER'S BORE), LAKES
ENTRANCE.

REPORT ON FOUR SAMPLES OF GLAUCONITE

FROM AUSTRAL OIL WELLS, NO. 1 (FOSTER'S BORE),

LAKES ENTRANCE.

INTRODUCTORY NOTE.

The Glauconite Sandstone in this bore was struck at 1230 feet. Samples were taken from 1231 feet 4 inches down to 1259 feet four inches, where the drilling has been temporarily suspended.

At this level, judging from the thickness of the glauconite in adjacent bores, there may still be about 10 feet of glauconite below the 28 feet already proved.

As a preliminary palaeontological and lithological test of this series, four samples, proportionately spaced as to depth, have been selected. They are as follows:-

1231' 4" to 1232' 1"

(This sample has been tested for porosity by the Chemist and Assayer of the Victorian Mines Dept. Mr. J.C. Watson).

1236' 1" to 1238' 1"

1245' 2" to 1246' 6"

(This sample also has been tested for porosity by Mr. Watson).

1257' 10" to 1259' 4"

The site of the bore hole is 100.65 feet above sea-level, so that the reduced level of the top of the glauconite rock is 1129.35 feet.

The samples were obtained by means of the Service Portable Percussion Type Rig, in conjunction with the Baker Core Barrel. Notwithstanding a fair amount of crushing and fracturing in the core obtained by this method it is possible to pick out fragments of the Glauconite Sandstone that have escaped, and of sufficiently large size to estimate their true porosity. Thus, some of the rock fragments still intact measure as much as $1\frac{1}{2}$ " x 1" x 1".

DETAILS OF SAMPLES.

1231' 4" - 1232' 1".

Description.

In hand specimen, a dull sage green, fine-grained coherent Sand-rock; with a low-power lens shows micaceous flakes and ovoid cavities, the latter indicating the former presence of the loosened ovoid pellets common to this horizon.

The Porosity of this sample (No. 1 Core) has been determined by Mr. Watson as 54%, and the Oil content as 0.16%.

In Thin Section this rock consists of more or less rounded glauconite grains intermingled with a large proportion of sharply angular quartz grains. The interspaces between the separate grains are filled with brown bituminous matter. In this slide the glauconite grains rarely show the typical colour although there are occasional particles showing an apple-green tint. This apparent scarcity of the green grains appears to be caused by the coating of hydro-carbonaceous matter, especially in the larger grains. Scattered through the matrix are a few organic particles referable to shell-fragments. Under crossed nicols the ground mass of this rock carries an abundance of dust-like particles of quartz. The glauconitized pellets in this sample have an average diameter of .7 mm. The angular quartz grains have an average diameter of .17 mm.

Washings :- These show numerous rounded pellets both green and brown. These pellets have a concentric or oolitic structure in most cases. Occasional large well rounded quartz grains, plates of muscovite mica, and a few badly preserved foraminifera, including the genera Cibicides and Discorbis.

The finest washings when seen under a very high power appear to be purely hydrocarbonaceous and some of them may be compared in shape with the protoplasmic bodies of minute foraminifera. Occasional sponge-spicules are present.

This sample gives a strong reaction for oil by the chloroform test. Mr. Watson reports that the oil content of this sample is 0.16%.

1236' 1" - 1238' 1".

Description - In hand specimen, a dark sage-green moderately fine-grained friable sand-rock, with whitish shelly particles seen on the broken surface.

In Thin Section - the glauconite grains appear of a brownish rather than green colour, with numerous angular quartz grains interspersed. Here and there may be seen a calcareous foraminiferal test containing a brown hydrocarbonaceous infilling. In one instance a section through a test of Haplophragmoides shows the last few chambers partially filled with brown hydrocarbonaceous particles; this goes to prove that at least a portion of the oily material is autochthonous, or directly derived from the protoplasm of the organisms, and not that the shells are secondarily fitted with bituminous matter derived from outside sources.

The average size of the glauconite pellets and the quartz grains are similar to the preceding sample.

Washings. These consist of numerous ovoid pellets, chiefly glauconitized, abundant shelly particles, some large often depressed and round edged quartz grains; also a few obscure foraminifera. The first washings show a larger quantity of quartz grains than the preceding sample. This sample gives a strong reaction for oil by the chloroform test.

1245' 2" - 1246' 6".

Description:-

In hand specimen a rather bright sage-green fine grained and tenaceous sand-rock. The broken surface shows numerous minute flakes of mica.

The Porosity of this sample (No.18 Core) has been determined by Mr. Watson as 53% and the oil content as 0.29%.

In Thin Section the pellets appear to be thickly coated with brown hydrocarbonaceous material and there is a fair proportion of angular quartz grains of the average size scattered through the rock.

Washings. The washings of this sample contain no large rounded quartz grains nor molluscan shells as in the preceding, though foraminifera are fairly abundant. (Gyroidina sp. and Anomalina sp.). Ostracoda are occasionally met with. Ovoid pellets are numerous.

Fine washings show an abundance of angular quartz grains with some brownish particles which seem to be referable to scales of fishes. This sample gives a strong reaction for oil by the chloroform test.

Compared with the preceding samples this rock is richer in organic remains, especially in the finer siftings.

1257' 10" - 1259' 4"

Description:-

In hand specimen is a dark greyish green friable sand-rock with numerous decomposed molluscan and other organic remains scattered throughout.

In Thin Section there is a larger proportion of quartz grain than in the preceding three samples. The glauconite is obscured by the coating of brown bituminous material and which acts as a cement to the rock.

Washings . These are distinct from the foregoing samples in having a large proportion of well-rounded quartz grainsand often wind-polished thus indicating the terrigenous and aeolian nature of the sand particles. The glauconite grains are abundant and comparatively small, possibly representing casts of foraminiferal shells.

There is, in this sample, a strong reaction for oil by the Chloroform test.

Frederick Chapman

21/10/36

1936.

El. 93.

T.O. 1260.

(Lat. $37^{\circ}52'12''S$
Long. $148^{\circ}00'00''E$)

Ph. Colquhoun.

R.F. G.E.R. P. 37

Produced Oil at 130 g/d. - pumping.

M.G. J. Vol. 2 No 3. Sept. 1940

This bore was drilled to a depth of 1259' 10" and some oil was produced by pumping. After a period of suspended operations during the time that the Inray bore was in progress, work was resumed at Foster's Bore early in 1940, and an attempt has been made to shut off the water that was entering at the bottom of the bore. A cement plug was built up to 1259' & it is reported that bailing tests conducted since then indicate that at least a partial shut off has been effected.

Raggat Report 1940. Pumping & bailing tests were in progress from August 1936 to April 1938. The average daily production of fluid was approx 6,500 g.p.d. yielding about 15% oil (approx 100 g.p.d.) Separation of oil was effected by addition of hydrochloric acid. Bailing tests also made between April and June 1940 for a daily production of about 9 gallons p. day. In June 1940 an attempt was made to shut off the bottom water by cementing. This was partially successful in increasing the percentage of oil to water. The oil yield remaining ~~at~~ at 9.9 p.d.

Gray & Crall. P. 6. "in the case of Foster's bore, tests supervised by the writers yielded a quantity of oil water emulsion from which dry oil at the rate of $4\frac{1}{2}$ barrels per day was obtained after suitable treatment."

Gray & Crall

El. 110± Top Oil Sand 1229'

T.D. 1259'.

Dr. H.G. Ruggatt 1940 "Oil Possibilities in Lake Embury Area"

Notes

Pumping & bailing tests Aug 1936 to April 1938.

Dr. daily prod. -> 6,500 galls/day yields about 1.5% of oil or approx 100 galls/day

Separation of oil from oil-water emulsion, obtained by pumping was effected by the addition of HCl.

Gravel Tests April 1940 - June 1940. -> 9 galls/day.

In June attempted to cement off bottom water. Partially successful & -> ~~approx 9 galls/day~~ in increased the % of oil to water but prod still at 9 galls/day.

(1) - 15 chains N. W. S.L. 100' ± ? Glauco at 1100' below sea level
= 1200' drilling to top of Glauco.

(2) 15 chains NE S.L. 100' ± ? Glauco at 1120' below sea level
= 1220' drilling to top of Glauco.

(3) 10 chains S. S.L. 25 ± ? Glauco at 1170' below sea level
= 1195' drilling to top of Glauco.

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✱

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CHEMIST
PUBLIC ANALYST

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TEL. M.U. 4315

CHAMBER OF COMMERCE BUILDINGS

35-43 WILLIAM STREET

MELBOURNE, C.1

23rd. July 1937.

The Secretary,
Austral Oil Drilling Syndicate,
TEMPLE COURT.

*From Foster bore
when pumping (?)*

Dear Sir,

Gippsland Gas.

My analysis of the sample of Gas submitted by you resulted
as follows:-

Oxygen	6.3	per cent
Unsaturated hydrocarbons	0.7	" "
Ethane	42.8	" "
Nitrogen	50.8	" "
Carbon dioxide	nil	
Carbon monoxide	nil	

The gas is a mixture of hydrocarbons and air, the oxygen and
nitrogen being present in the same relative proportions as in air.

A small amount of hydrogen may also be present, but this is
somewhat doubtful.

Yours faithfully

F. H. Campbell

W402

- 80 - 85 ft. shell band - this does not show on No.8. log.
- 110' Struck water - shown on No.8. at 160 ft. which is 50 ft. higher - sea level
- 475 ft. not much difference in formation as compared with No.8.
- 650 ft. run 639 ft. casing
- 720 ft. cased to 714 ft.
- 887 ft. gas very strong - more than other wells except Midwest No.1.
- 1018 ft. brown micaceous clay - gas very strong
- 1090 ft.
- 1229 ft. reached oil sand
cased to bottom
casing cemented with 2,000 lbs. cement
- 1240'6" - cored 11'6" into oil sands - oil showing exceptionally good.
Cored 15'10" into oil sands - no swabbing, but put acid in the sands to study the effect - bailed 15 gals. fluid, 7½ gals. oil.
- 1253'10" - Cored 24'10" into oil sands - core saturated with oil - grains well rounded, medium size on top, to coarse at bottom.
Stopped coring on hard band
20 ft. of glauconite reamed to 10". Top water giving no trouble.
No bottom water - fluid bailed shows more oil than water.
After standing 34 hours, 14¼ gals. fluid in bore (9 oil, 5¼ water)
Started swabbing
- 1259'4" - 1257' to 1259" pure glauconite - started with 6" shell band imbedded in it - no trace of water - very dry, previously 3 ft. of core like water sand impregnated with glauconite produced 1½ gals. water per hour - Sands here differ from any other on field, being thicker and no other log shows second series of glauconite nor water sands just passed through.

(Copy of Log)

PRODUCTION POINT - NUTRAL OIL TRILLING SYNDICATE N.L.

Elevation 97'.

80' to 85' - shell band
110' " - water
887' - gas very strong
1018' - brown micaceous clay, gas very strong.
1229' - glauconite.

6" casing cemented using 2,000 lbs. cement.

1240'6", cored into oil sand, oil showing exceptionally good.

Acid was tried to open up sand (ineffective).

1253'10", core saturated with oil (sand medium to coarse).

20 feet of glauconite reamed to 10". Top water giving no trouble, not bottom water, fluid bailed showed more oil than water.

After standing 34 hours, 14½ gals. fluid, 9 oil, 5½ water.

1257'10" to 1259'4" - fine glauconite, 6" shell band imbedded in sand, no water, very dry.

From 5/1/1937 to 28/1/1938 pumped 2,290,742 gals. fluid,-

35,316 gallons oil, subject to dehydration.

Well at present standing idle, pending a test for intruding water.

FOSTER'S BORE

		Standing hours	Fluid Rise Feet	Fluid Bailed Gallons	Oil Bailed gallons
1940	April	29	3 1/2		
		30	24		13 3/4
	May	3	21		5 1/4
		4	20		14 3/4
		6	45	280	30
		7	18		9 1/4
		8	21	275	13 3/4
		9	19	360	10
		10	19	395	12
		11	19	400	10
		13	47	380	15
		20	168	526	25
		21	17	190	6
		22	27 1/2	112	11
		23	19	450	10 3/4
		24	18	530	12
		25	16	550	11
		27	45	446	17
		28	16 1/2	995	11
		29	18 1/2	445	11 1/2
		30	18	610	10
		31	17	591	8
	June	1	16 1/2	634	8 1/2
		3	45	505	15
		4	16 1/2	1030	7
		5	21	525	9
		6	21	693	7 1/2
		7	16 1/2	620	9 1/2
		8	16 1/2	640	9 1/2
		10	45	510	5 1/2
		11	16 1/2	741	8 1/2
		12	22	6 1/2	2 1/2
		13	22		2
		14	24		2
		15	24		3 1/2
		18	70		4
					fluid 100 ft. from surface - filled with water cemented with 1/2 bag cement, sealed head on casing and using Marsh feed pump put 120 lbs. pressure per sq. in. continuously - cement used sufficient for filling 2'6".
		24			Opened up for test - water clean, bailed to 60 feet from bottom, hole only filled 1', i.e. 1258 ft.
		25	17	55	dry
		26	19 1/2	75	dry
		27	22 1/2	88	
		28	24	90	
		29	24	92	
	July	1	50	212	16
		2	22	90	8
		3	24	100	8
		4	24	98	7
		5	24	102	7
		6	24	104	7
		8	50 1/2	200	15

21.46
15% h. hr.
5492
16 gals h. hr.
4007
29 gals h. hr.
345
3.22 g. h. hr.
1002
4.2 h. hr.

70 i.e. 3.26% of fluid
fluid discoloured & emulsified.
115 = 1.92%
55 = 1.37%
fluid discoloured 90° no mud.
dry
dry
40 11.6%
75 7.4%
31 gals oil h. hr.

Foster's bore

		<i>Standing hours</i>	<i>Fluid rise</i>	<i>Fluid gals</i>	<i>Bailed oil gals</i>
1940					
July	9	21		96	7 bailed dry
	12	79 $\frac{3}{4}$	295' 10" in 76 hrs.	373	23 " "
	15	69	269' in 65 $\frac{1}{2}$ hrs.	336	24 " "
	16	19 $\frac{1}{2}$	77' 4" in 18 hrs.	98	6 $\frac{1}{2}$ } 7' " 6.7% oil
	17	24	99' 6" in 22 hrs.	124	8 $\frac{1}{2}$ }
	18	24	99' 6" in 21 hrs.	125	9 $\frac{1}{2}$ } Sir E. Teale, Croll, Chapman at bore.
	19	24	96' in 22 hrs.	118	9 $\frac{1}{2}$ }
	20	24	96' in 22 hrs.	124	11 }
	22	51	200' in 43 $\frac{1}{2}$ hrs.	256	20 } 73 8.47% oil
	23	21	83' in 19 hrs.	112	11 $\frac{1}{2}$ }
	24	24	100' in 22 hrs.	124	11 }
	25	24	100' in 22 hrs.	128	10 }
	26	24	98'	125	11 }
	27	24	94'	121	9 }
	29	51	208'	259	18 } 67 7.7% oil
	30	21	86'	103	8 }
	31	24	102'	132	9 }
Aug.	1	24	102'	129	12 }

Pump started 25 Aug 1936. Interimment tests to end Dec. 1936 produced 48,37 gal. Oil
AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY estimated 48 days pumping

FOSTER'S BORE

1937	Test Fluid pumped per hr. gals.	Average fluid gallons		Production days, hrs.	Production			Oil Average		
		per day	per week		Fluid gals.	Oil	% Oil to fluid	per hour - gallons	per day - gallons	per day - barrels
5 Jan. 8 a.m.	245	5880	41160	6.14	193480 38710	4837 1054	2.70	6.670	160.08	4.57
12 " "	230	5520	38640	6.21	37950	811	2.14	4.915	117.96	3.37
17 " "	247	5928	40796	3.8	19760	418	2.12	5.222	125.33	3.58
2 Feb.	241	5784	40488	9.0	52046	1290	2.49	6.771	143	4.08
7 "	258	6192	43344	5.5 $\frac{1}{3}$	32085	556	1.73	4.436	106.46	3.04
16 " 8 a.m.	240	5760	40320	7.8	42240	834	1.97	4.738	111.20	3.18
23 "	256	6144	43008	6.6 $\frac{1}{2}$	38528	843	2.19	5.613	134.70	3.85
2 Mar.	257	6168	43176	6.19 $\frac{1}{2}$	42019	1042	2.47	6.373	152.90	4.37
16 "	238	5712	39984	6.6 $\frac{3}{4}$	36354	600	1.65	3.927	94.25	2.69
23 "	250	6000	42000	6.21	41250	860	2.08	5.212	125.09	3.57
27 "	272	6528	45696	3.6 $\frac{1}{2}$	21346	325	1.52	4.140	99.36	2.84
3 Apl.	251	6024	42168	3.22	23594	500	2.12	5.319	127.66	3.65
10 "	250	6000	42000	6.17	40250	834	2.07	5.180	124.32	3.55
24 "	400	9600	67200	6.15	63600	712	1.12	4.457	106.94	3.05
1 May,	20	4824	33768	5.15 ¹⁰	27168	300	1.10	2.222	53.33	1.52
8 "	166	3984	27888	5.5 ⁵⁰	20916	729	2.86	5.791	138.98	3.97
16 "	287	2088	14616	6.18	14094	450	3.19	2.777	66.65	1.90
24 "	83	1992	13944	6.16	13280	150	1.13	.937	22.49	.642
18 June,	283	6792	47474	7.3	58393	480	.821	2.806	67.34	1.924
25 "	297	7528	52696	6.20	48931	470	.960	2.852	68.45	1.956

702514 18093

AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY

FOSTER'S BORE

1937	Test Fluid pumped per hr. gals.	Average fluid gallons		PRODUCTION				OIL AVERAGE		
		per day	per week	days hrs.	Fluid gals.	Oil gals.	% Oil to fluid	per hour - gallons	per day - gallons	per day ^{barrels} gallons @ 35 gals.
Total of previous returns				171. 8	906,004	18,093	1.997		109.17	
2 Jly.	283	6792	47544	6. 17	45,563	420	.992	2.608	62.592	1.788
9 "	290	6960	48720	5. 20	40,600	792	1.950	5.657	135.768	3.879
16 "	283	6792	47544	6. 23	47,261	690	1.459	4.131	99.144	2.833
23 "	297	7128	49896	6.21	49,005	800	1.632	4.848	116.352	3.324
30 "	270	6480	45360	6. 19	44,010	650	1.477	4.088	98.112	2.803
5 Aug.	270	6480	45360	6.14	42,660	650	1.527	4.114	98.736	2.821
13 "	270	6480	45360	7. 0	45,360	600	1.302	3.571	85.704	2.448
20 "	260	6240	43680	6. 22	43,160	780	1.853	4.699	112.800	3.223
27 "	270	6480	45360	6. 20	44,280	620	1.400	3.780	90.720	2.591
3 Sep.	270	6480	45360	6.23	45,090	680	1.507	4.071	97.704	2.791
10 "	270	6480	45360	4.1	26,190	250	.954	2.577	61.848	1.768 <i>Engine broke down</i>
17 "	324	7776	54432	3.21	30,132	360	1.195	3.870	92.880	2.653
24 "	297	7128	49896	6.13	46,629	685	1.469	4.363	104.712	2.991
1 Oct.	297	7128	49896	6.23	49,599	710	1.431	4.251	102.024	2.914
8 "	297	7128	49896	6.22	49,302	768	1.557	4.626	111.024	3.172
15 "	296	7104	49728	6.22	49,136	698	1.420	4.205	100.920	2.883
22 "	296	7104	49728	6.23	49,432	810	1.638	4.850	116.400	3.326
29 "	296	7104	49728	6.21	48,840	500	1.024	3.030	72.720	2.077 <i>Bad acid + inhibitor</i>

AUSTRAL OIL DRILLING SYNDICATE N.L.

FOSTER'S BORE - PRODUCTION

1936				
May 20	Cored 24 ft. 10 ins. into oil sands. (1253'10"		Oil	Water
		Bailed	7½ gals.	7½ gals.
28		"	9	5¼
June 4		"	28	12
10		"	102	48
13		"	45	35
July 8		"	75	-
20	Bailed dry	"	600	-
21		"	121	-
22		"	75	195
26		"	70	145
Aug. 3		"	340	830
5		"	90	335
6	Pump installed		275	450
7			85	190
8			70	170
10			65	275
12			75	325
13			94	320
14			72	300
15			75	300
17			68	280
26			100	425
27			100	1100
28			65	160
Sep. 1			90	180
2			216	1225
3			120	630
4			250	1450
Dec. 28			286	1614
			1391	-
			<hr/>	<hr/>
			5059	11006

Log of Foster's Bore

1936		
April 21	Reached oil sands.	
May 1	Cased to bottom.	
2	Cemented with 2,000 lbs. cement.	
15	Cored 11'6" into oil sands - oil showing exceptionally good.	
18	Cored 15'10" into oil sands, no swabbing, put acid in.	
20	Cored 24'10" (1253'10").	

FOSTER'S BORE

1937

	Test Fluid pumped per hr. gals.	Average fluid gallons			PRODUCTION			OIL AVERAGE		
		per day	per week	days hrs.	Fluid gals.	Oil gals.	% Oil to fluid	per hour - gallons	per day - gallons	per day - gallons <i>hand</i>
5 Nov.	296	7104	49728	7.0	49728	694	1.396	4.130	99.143	2.832
12 "	296	7104	49728	5.0	35520	450	1.267	3.750	90.000	2.666 pump rod broke
19 "	296	7104	49728	7.0	49728	576	1.158	3.427	82.285	2.348
26 "	296	7104	49728	6.22	49136	600	1.221	3.614	86.736	2.478
3 Dec.	200	4800	33600	3.20	18400	180	.978	1.956	46.944	1.341 engine broke down
10 "	310	7440	52080	6.20	50840	540	1.062	3.292	79.008	2.257
17 "	339	8136	56952	6.21	55935	504	.900	3.054	73.296	2.094
24 "	290	6960	48720	6.11	44950	308	.685	1.987	47.688	1.362
31 "	324	7776	54432	2.23	23004	280	1.217	3.943	94.632	2.704
				340.18	2079494	33688	1.620			

1938

7 Jan.	324	7776	54432	6.22	53784	520	.966	3.132	75.168	2.147
14 "	324	7776	54432	6.23	54108	450	.831	2.694	64.656	1.847
21 "	324	7776	54432	6.21	53460	250	.468	-	-	no acid part of time caused poor result.
28 "	324	"	"	6.10	49896	408	.817	2.642	63.408	1.869 shut down.

Average pumped 96 gallons oil per day, 367.22 2290742 35316

Pump started 25 Aug 1936. Intermittent tests to end Dec: 1936 produced

AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY

4837 gals. oil -
estimated 48 days pumping

FOSTER'S BORE

1937	Test Fluid pumped per hr. gals.	Average fluid gallons		Production days, hrs.	Production			Oil Average			
		per day	per week		Fluid gals.	Oil	Oil to fluid	per hour - gallons	per day - gallons	per day - barrels	
5 Jan. 8a.m.	245	5880	41160	6.14	193480 38710	4837 1054	2.70	6.670	160.08	4.57	
12 "	"	230	5520	38640	6.21	37950	811	2.14	4.915	117.96	3.37
17 "	"	247	5928	40796	3.8	19760	418	2.12	5.222	125.33	3.58
2 Feb.	241	5784	40488	9.0	52046	1290	2.49	6.771	143	4.08	
7 "	258	6192	43344	5.5 $\frac{1}{2}$	32085	556	1.73	4.436	106.46	3.04	
16 " 8 a.m.	240	5760	40320	7.8	42240	834	1.97	4.738	111.20	3.18	
23 "	256	6144	43008	6.6 $\frac{1}{2}$	38528	843	2.19	5.613	134.70	3.85	
2 Mar.	257	6168	43176	6.19 $\frac{1}{2}$	42019	1042	2.47	6.373	152.00	4.37	
16 "	238	5712	39984	6.6 $\frac{1}{2}$	36354	600	1.65	3.927	94.25	2.69	
23 "	250	6000	42000	6.21	41250	860	2.08	5.212	125.09	3.57	
27 "	272	6528	45696	3.6 $\frac{1}{2}$	21346	325	1.52	4.140	99.36	2.84	
3 Apl.	251	6024	42168	3.22	23594	500	2.12	5.319	127.66	3.65	
10 "	250	6000	42000	6.17	40250	834	2.07	5.180	124.32	3.55	
24 "	400	9600	67200	6.15	63600	712	1.12	4.457	106.94	3.05	
1 May,	20	4824	33768	5.15 ¹⁰	27168	300	1.10	2.222	53.33	1.52	
8 "	166	3984	27888	5.5 ⁵⁰	20916	729	2.86	5.791	138.98	3.97	
16 "	287	2088	14616	6.18	14094	450	3.19	2.777	66.65	1.90	
24 "	83	1992	13944	6.16	13280	150	1.13	.937	22.49	.642	
18 June,	283	6792	47474	7.3	58393	480	.821	2.806	67.34	1.924	
25 "	297	7528	52696	6.20	48931	470	.960	2.852	68.45	1.956	

AUSTIN OIL DRILLING SYNDICATE NO LIABILITY
FOSTER'S BORE

1937	Test Fluid pumped per hr. gals.	Average fluid gallons		PRODUCTION			OIL AVERAGE			
		per day	per week	days hrs.	Fluid gals.	Oil gals.	Oil to fluid	per hour gallons	per day gallons	per day gallons <small>35 gals.</small>
Total of previous returns				171. 8	906,004	18,023	1.997		109.17	
2 Jly.	283	6792	47544	6. 17	45,563	420	.992	2.608	62.592	1.788
9 "	290	6960	48720	5. 20	40,600	792	1.950	5.657	135.768	3.879
16 "	283	6792	47544	6. 23	47,261	690	1.459	4.131	99.144	2.833
23 "	297	7128	49896	6.21	49,005	800	1.632	4.848	116.352	3.324
30 "	270	6480	45360	6. 19	44,010	650	1.477	4.088	98.112	2.803
5 Aug.	270	6480	45360	6.14	42,660	650	1.527	4.114	98.736	2.821
13 "	270	6480	45360	7. 0	45,360	600	1.302	3.571	85.704	2.448
20 "	260	6240	43680	6. 22	43,160	780	1.853	4.699	112.800	3.223
27 "	270	6480	45360	6. 20	44,280	620	1.400	3.780	90.720	2.591
3 Sep.	270	6480	45360	6.23	45,090	680	1.507	4.071	97.704	2.791
10 "	270	6480	45360	4.1	26,190	250	.954	2.577	61.848	1.768 <i>slug broke down</i>
17 "	324	7776	54432	3.21	30,132	360	1.195	3.870	92.880	2.653
24 "	297	7128	49896	6.13	46,629	685	1.469	4.363	104.712	2.991
1 Oct.	297	7128	49896	6.23	49,599	710	1.431	4.251	102.024	2.914
8 "	297	7128	49896	6.22	49,302	768	1.557	4.626	111.024	3.172
15 "	296	7104	49728	6.22	49,136	698	1.420	4.205	100.920	2.883
22 "	296	7104	49728	6.23	49,432	810	1.638	4.850	116.400	3.326
29 "	296	7104	49728	6.21	48,840	500	1.024	3.030	72.720	2.077 <i>Had acid & inhibitor</i>

FOSTER'S BORE

1937

	Test Fluid pumped per hr. gals.	Average fluid gallons			PRODUCTION			OIL AVERAGE		
		per day	per week	days hrs.	Fluid gals.	Oil gals.	% Oil to fluid	per hour gallons	per day gallons	per day ^{barrel} gallons
5 Nov.	296	7104	49728	7.0	49728	694	1.396	4.130	99.143	2.832
12 "	296	7104	49728	5.0	35520	450	1.267	3.750	90.000	2.666 pump rod broke
19 "	296	7104	49728	7.0	49728	576	1.158	3.427	82.285	2.348
26 "	296	7104	49728	6.22	49136	600	1.221	3.614	86.736	2.478
3 Dec.	200	4800	33600	3.20	18400	180	.978	1.956	46.944	1.341 engine broke down
10 "	310	7440	52080	6.20	50840	540	1.062	3.292	79.008	2.257
17 "	339	8136	56952	6.21	55935	504	.900	3.054	73.296	2.094
24 "	290	6960	48720	6.11	44950	308	.685	1.987	47.688	1.362
31 "	324	7776	54432	2.23	23004	280	1.217	3.943	94.632	2.704
				340.18	2079494	33688	1.620			
1938										
7 Jan.	324	7776	54432	6.22	53784	520	.966	3.132	75.168	2.147
14 "	324	7776	54432	6.23	54108	450	.831	2.694	64.656	1.847
21 "	324	7776	54432	6.21	53460	250	.468	-	-	no acid part of time caused poor result.
28 "	324	"	"	6.10	49896	408	.817	2.642	63.408	1.869 shut down.
Average pumped 96 gallons oil per day, 367.22 2290742 35316										

Notes on Gippsland Oil Bores

By I. C. H. Croll, B.Sc.

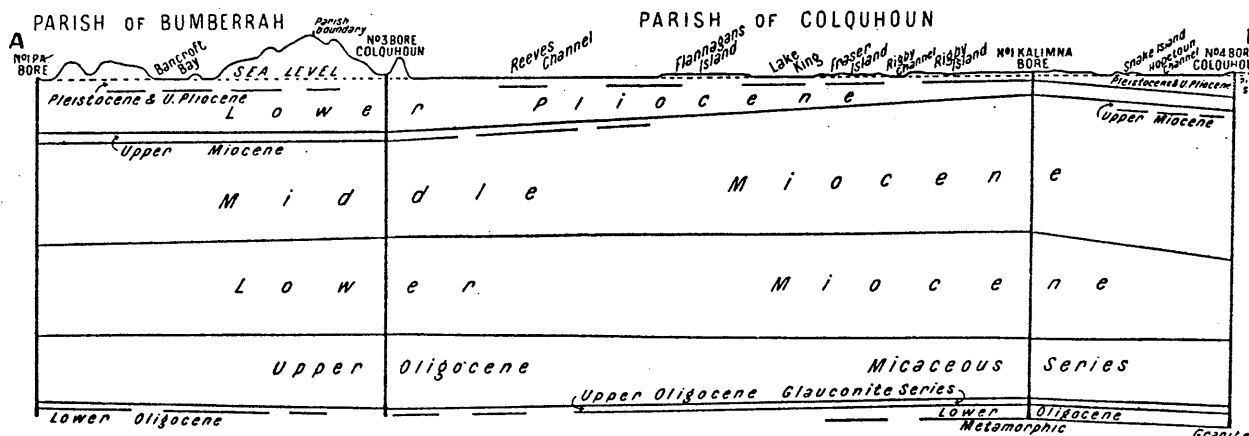
GOVERNMENT BORES.

Since the beginning of 1940 the Victorian and Commonwealth Governments have extended the exploratory drilling campaign for oil by completing three bores in the Parish of Colquhoun, whilst two others are in progress in that parish and one in the Parish of Bengworden South. The three completed bores yielded a great amount of valuable geological information, as they were all in regions which had not previously been drilled, and help to fill in gaps in the knowledge of the structural conditions of the district between Lakes Entrance and Metung. The accompanying west-east section A-B includes two of these bores, Nos. 3 and 4, and indicates how the information gained from them links up with the data from No. 1 Point Addis bore at Metung and No. 1 Kalimna bore at Rigby Island (see *Records of Boring Operations 1923-30*, pp. 116 and 117). It should be noted that the relation of the vertical to the horizontal scales is 6.6:1, and that after allowing for this considerable exaggeration the surfaces of stratigraphic divisions are relatively flat. As the section is along the strike of the beds this is not surprising, but it does indicate how remote is the possibility that faulting has occurred along the direction of the dip, as has been claimed.

Cores from each bore were sent to the Commonwealth Palaeontologist at Canberra, and summaries of her reports, where available, are given below. As the purpose of the bores was primarily to obtain a more complete knowledge of the physical properties of the glauconitic series, the samples of this material were sealed on recovery, and are being tested for porosity, permeability, saturation, and lithological details.

No. 3 BORE, NUNGURNER.

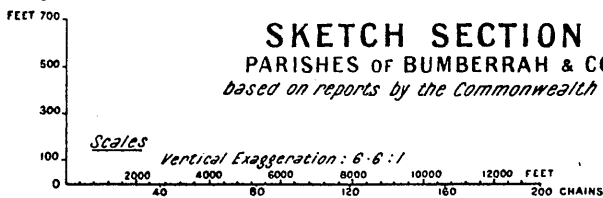
This bore is situated on the shore of Reeves Channel (Lake King), about 20 chains north-easterly of the Nungurner jetty, in the township of Nungurner. No drilling difficulties were encountered until the top of the glauconitic sandstone series was reached at 1,434 feet, when the depth and hard drilling made progress very slow. The series comparable with the oil-bearing beds at Lakes Entrance proved to be only a few feet thick, and was succeeded by bands of a very hard sandstone containing some glauconite. It is not unreasonable to regard this hard sandstone as part of the glauconitic series, rather than to make a separate subdivision of it or to include it with the Lower Oligocene beds with which it has no affinity, and it has been shown on the section in that way. A similar hard sandstone



SKETCH SECTION A—B

PARISHES OF BUMBERRAH & COLQUHOUN
based on reports by the Commonwealth Palaeontologist

I. C. H. Croll - B.Sc.
9.8.40



PLAN



was recorded below the typical glauconitic bed at the Gippsland Oil Company's No. 1 bore (see below). The Commonwealth Palaeontologist has determined the following sequence in the Nungurner bore:—

Lower Pliocene	.. ..	100'-243'
Upper Miocene	.. ..	243'-283'
Middle Miocene	.. ..	283'-706'
Lower Miocene	.. ..	706'-1,112'
Upper Oligocene, micaceous series	.. ..	1,114'-1,434'
Upper Oligocene, glauconitic series	.. ..	1,434'-1,454'

The limit of the plant was reached at 1,454 feet, and the equipment was moved to a new site near Kalimna, where No. 6 bore is in progress.

No. 4 BORE, LAKES ENTRANCE.

The Commonwealth-owned deep-drilling plant was shifted from Sperm Whale Head to a site at the Pilot Station on the eastern side of the entrance to the lakes (see plan), and drilling commenced early in 1940. A complete sequence of Tertiary beds was passed through, and the Commonwealth Palaeontologist has reported as follows:—

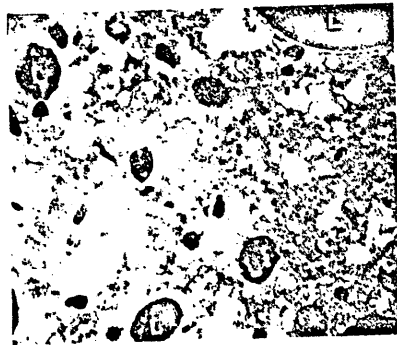
Pleistocene and Upper Pliocene	.. ..	to 100'
Lower Pliocene	.. ..	100'-160'
Upper Miocene	.. ..	174'
Middle Miocene	.. ..	184'-798'
Lower Miocene	.. ..	799'-1,140'
Upper Oligocene, micaceous series	.. ..	1,150'-1,421'
Upper Oligocene, glauconitic series	.. ..	1,421'-1,444'
Lower Oligocene	.. ..	1,484'-1,498'
Basement (granite)	.. ..	1,508'

Several samples in the lower parts of this bore were of sufficient interest to warrant having sections cut for microscopic examination. At 1,425 ft. 6 in. the material is a greyish green glauconitic sandstone containing abundant loose and rounded pellets of limonite. A freshly fractured face of the sample has the appearance of high porosity, due to the limonitic pellets being so loose and dropping out, but the rock is probably no more porous in bulk than that from the bores further north and north-east. In thin section (No. 43,586) the material is seen to consist of abundant sharply angular quartz grains less than 0.1 mm. in diameter and some biotite set in a granular aggregate of dull green glauconite, together with circular or oval pellets of

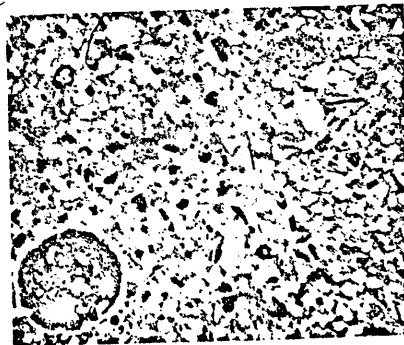
limonite which have a maximum diameter of 1.5 mm. Some of these pellets appear to be homogeneous, whilst others have formed by the deposition of concentric layers of limonite round grains of biotite. In only one respect does this material differ to any extent from that recorded in other bores in the district, and that is in the comparative abundance of foraminifera, of which Mr. W. J. Parr has been able to determine at least six genera—*Globigerina*, *Cibicides*, *Pullenia*, *Elphidium*, *Eponides*, and *Bolivina*.

The core from 1,491'-1,494' consists of a soft yellowish brown ironstone almost entirely made up of replacements of organic remains. In thin section (No. 43,607) the organic remains appear as limonitic replacements of parts of polyzoa, foraminifera, shells and echinoid spines, set in a matrix of siderite and calcite. At 1,494 feet (section 43,609) the rock is a ferruginous sandstone and organic remains are rare. Quartz grains occur in two distinct groups—fairly abundantly as small angular fragments less than 0.1 mm. across, and sparingly as sub-angular or oval grains ranging from 0.5 to 1.5 mm. in diameter. Limonite is moderately abundant, both interstitial and in the form of the concentrically coated pellets, and other minerals present include small amounts of glauconite, biotite in various stages of alteration to chloritic material, highly decomposed feldspar, and fragments of granite, all set in a sideritic and calcareous matrix.

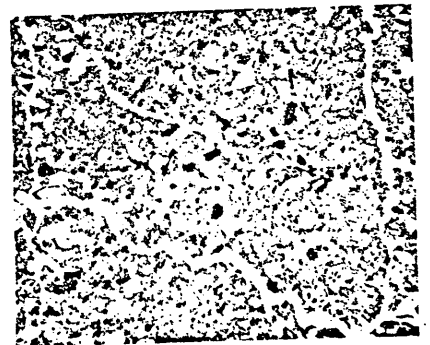
The bore entered solid granite at 1,508 feet, and a piece of core 3 inches long was obtained before drilling was suspended at 1,508 ft. 6 in. (section No. 43,612). The rock has a mottled appearance, due apparently to the pink colour of the orthoclase feldspar and the faint greenish tinge of the plagioclases, and it does not closely resemble the pink granite that is quarried north of Lakes Entrance at Colquhoun. The minerals present are quartz; orthoclase feldspar altering to kaolin; plagioclases (principally oligoclase) with prominent zoning; microcline; biotite altering in part to chlorite; apatite; and ilmenite or magnetite. Potash feldspars appear to predominate over the soda-lime feldspars, and the rock is a true biotite granite similar to that found at the bases of the No. 2 L.E.D. and No. 1 Government bores.



Glauconitic sandstone 1,425 ft. 6 in., No. 4 bore, Parish of Colquhoun. Angular quartz grains set in glauconitic matrix. Note rounded pellets of limonite (L).



Hard, siliceous limestone at 1,155 ft. 6 in., No. 5 bore, Parish of Colquhoun, showing rounded segregation of glauconite enclosing fragments of quartz.



Hard siliceous limestone, 1,217 ft., No. 5 bore, Parish of Colquhoun. Similar to hard band at 1,155 ft. 6 in. but without segregations of glauconite.

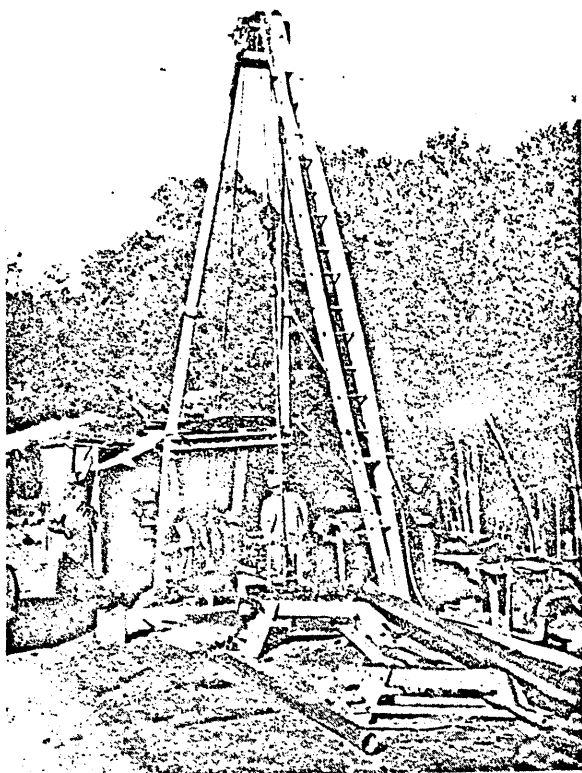
Traces of free oil were recorded in the glauconitic series at 1,441 and 1,443 feet, but the upper part of the series was apparently quite dry.

On completion of this bore the plant was removed to a site at Holland's landing in the Parish of Bengworden South where work is now in progress.

No. 5 BORE, MARINGA CREEK.

The site of this bore is on the north bank of Maringa Creek, approximately 1 mile south-south-westerly of the Kalimna West Post Office and State School (Parish of Colquhoun). The stratigraphic sequence has been determined as follows:—

Pleistocene and Upper Pliocene ..	10'-70'
Lower Pliocene	80'-120'
Middle Miocene	130'-700'
Lower Miocene	710'-1,060'
Upper Oligocene, micaceous series	1,070'-1,228'
Upper Oligocene, glauconitic series	1,228'-1,249'
	(last sample).



Scout Drilling plant at Maringa Creek.

The bore reached a depth of 1,255 feet, but the last 6 feet of core was not recovered after the rods broke and left an obstruction in the hole. The thickness of the glauconitic series at this point is therefore in doubt, but is not less than 21 feet.

One feature of the micaceous series in this bore was the unusual number of nine hard bands, from 4 to 12 inches thick, nearly double the number hitherto recorded in other bores. At 1,155 ft. 6 in. to 1,156 ft.

6 in. (section 43,738) the hard band is a fine grained grey siliceous limestone containing abundant fragments of angular quartz less than 0.1 mm. across; some irregular shaped and some oval segregations of grass-green glauconite up to 1 mm. in diameter, enclosing fine fragments of quartz and biotite; moderately abundant small flakes of biotite mostly altered to an emerald green chloritic material; and organic remains; all set in a very fine calcareous matrix. The organic remains include foraminifera, polyzoa, and a sponge spicule. At 1,217 feet (section 43,745) the material is a buff coloured limestone almost identical with that at 1,155 ft. 6 in. except that the segregations of glauconite are absent.

The boring plant has now been removed to a site near the mouth of Lake Bunga.

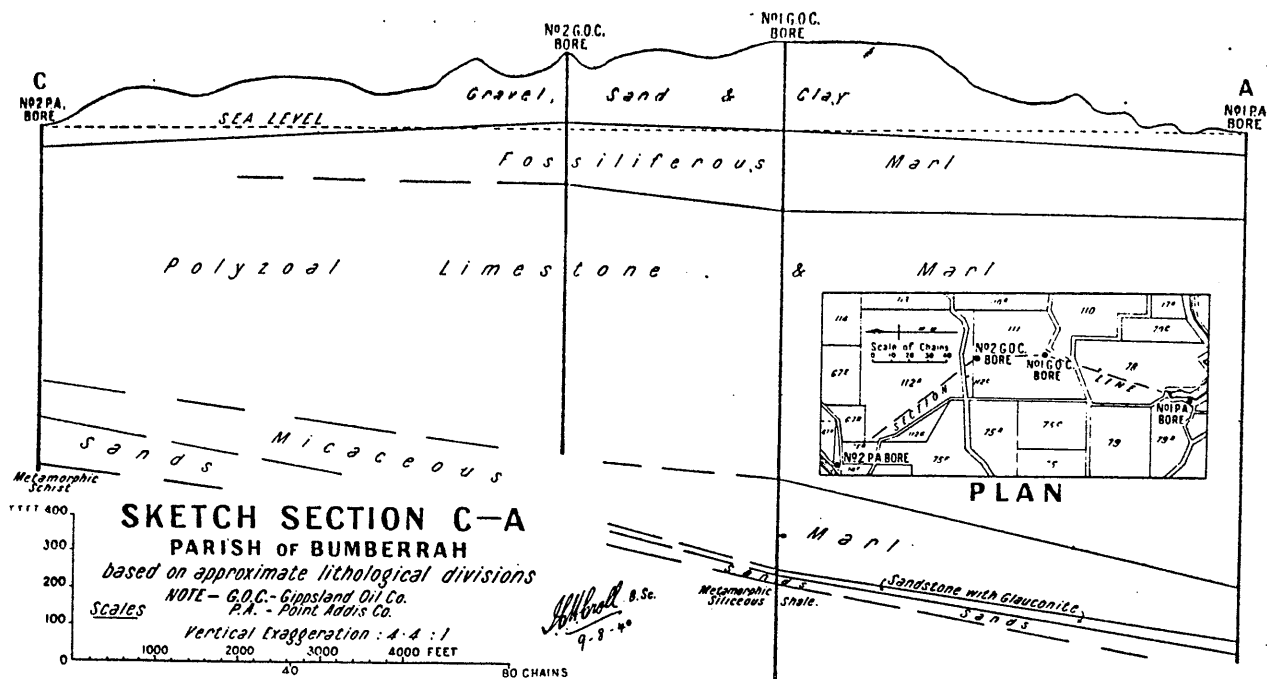
GIPPSLAND OIL COMPANY.

This company is holder of Petroleum Prospecting Licence No. 68, embracing an area of 10,227 acres between Lakes Entrance and Metung. The following notes on the prospecting activities are compiled from the reports supplied by the company to the Department supplemented by personal inspections, examination of the core samples, and some analyses made at the Mines Department laboratory. The accompanying section C-A shows the relation between the information gained by the company's two bores in the Parish of Bumberrah and that obtained by the Nos. 1 and 2 bores of the Point Addis Company (vide *Records of Boring Operations* 1923-30, pp. 35 and 116). The section indicates the existence of a very gentle southerly dip not exceeding about 3 deg. and rather less than that on the average.

No. 1 BORE. W 418. GIPPSLAND - 1

Drilling commenced at this bore, the site of which is shown on the plan, on 28th February, 1939, and at the present time is reported to have reached a depth of 1,766 feet. The surface level is 255 feet. Samples of the cores have been submitted to the Department as requested, and the following summary is based on an examination of the samples. (Note.—The depths are those shown on the sample labels.) :—

To 250'	..	Sand and clay.
250'-463'	..	Shelly marl.
500'-1,200'	..	Polyzoal limestone.
1,216'-1,373'	..	Micaceous marl.
1,446'-1,458'	..	Grey-green soft sandstone with some glauconite.
1,458'-1,462'	..	Hard grey sandstone with a little glauconite.
1,462'-1,477'	..	Fine and coarse loosely compacted white quartz sand and clayey sand.
1,483'-1,484'	..	White quartz sand with chips of grey shale and sandstone.
1,484'	..	Grey siliceous metamorphic shale with fine quartz veinlets.
Below 1,484'	..	Samples of shale, or sand mixed with chips of shale.



It is quite clear from the samples that drilling beyond the depth of 1,484 feet, where the first definite bedrock sample was obtained, cannot be justified as far as the search for oil is concerned.

The glauconitic sandstone obtained in this bore at 1,446 to 1,458 feet is comparable with the Lakes Entrance material, but appears to contain more clay and less glauconite. Extraction tests for oil on several samples gave completely negative results. The hard sandstone from 1,458 to 1,462 feet is similar to that in the Nungurner bore (see above), and has been similarly grouped with the more typical glauconitic material in constructing the section. A slide of the hard sandstone at 1,460 feet shows it to consist of abundant grains of angular quartz of an average width of 0.2 mm., less abundant rounded grains of quartz up to 1.5 mm. diameter, biotite in various stages of alteration to chlorite and glauconite, pale green aggregates of glauconite, and some calcareous cementing material.

A number of fossils obtained from the loose sands below the glauconitic beds included several small well preserved sharks' teeth, fish scales, and some pyritic replacements of corals and mollusca.

Water.

The first water horizon was reported at 290 feet, but apparently no sample was taken until the bore had reached 705 feet. Analysis of a sample marked "705 feet" resulted as follows (Lab. No. 400/1939):—

Sodium.—165 parts per million—24 per cent.
 Chlorides.—250 parts per million—36 per cent.
 Sulphates.—Not tested.

Carbonates and bicarbonates.—96 parts per million—14 per cent.

Concentration.—690 parts per million.

This water has a lower concentration than the upper water at Lakes Entrance, but the proportions of the radicles present, as far as the analysis was carried, are approximately the same.

The lower water horizon was encountered in the vicinity of 1,462 feet, although the volume of water did not appear to be nearly as great as in many other bores. The surface level of this bore precludes the possibility of an artesian flow, and the water did not rise beyond 55 feet above sea level. Partial analysis of a sample of the lower water gave the following result:—

Chlorides.—830 parts per million—41 per cent.

Sulphates.—Nil.

Carbonates and bicarbonates.—640 parts per million—32 per cent.

Concentration.—2,020 parts per million.

The concentration in this case is somewhat higher than the Lakes Entrance lower water, but the chemical characteristics agree fairly closely, particularly in the entire absence of sulphates.

Gas.

A non-inflammable gas was reported at 175 feet, and analysis showed it to contain 11 per cent. of carbon dioxide and nitrogen, the remainder of the sample being air. Inflammable gas, probably methane, was recorded at various depths, and was in greatest abundance associated with the lower water.

Oil.

The company reported that the first traces of oil were obtained when drilling was in progress between 637 and 705 feet. At a depth stated to be 1,484 ft. 6 in. a faint film of oil was seen by me on the water brought up in the bailer while cleaning out after the first few inches of bedrock had been entered. While the bore was at the same depth the casing was pulled back and small quantities of oil were obtained, apparently from the sands immediately above bedrock where the company had reported "struck oil" at 1,482 feet. The occurrence of oil at the base of a series which here and elsewhere is completely saturated with water is most unusual.

No. 2 BORE. W430 GIPPSLAND-2

This bore is also situated in allotment 111, Parish of Bumberrahi, as shown on the accompanying plan, and operations commenced on 30th November, 1939. Surface level is 225 feet. The company's weekly reports indicate the following general sequence:—

- To 208' .. Sand, clay, and gravel.
- 208'-372' .. Shelly marl.
- 372'-1,106' .. Polyzoal limestone and marl.

The present depth is reported to be 1,106 feet, at which it is stated that the limit of the plant has been reached, but that arrangements will be made to continue operations when a heavier plant is available.

Water.

The company reported that the first (upper) water horizon was met at 208 feet, and a sample marked "216 feet" was analysed at the Mines Department laboratory with the following result (Lab. No. 323/1940):—

- Chlorides.—370 parts per million—32 per cent.
- Sulphates.—30 parts per million—3 per cent.
- Carbonates and bicarbonates.—310 parts per million—26 per cent.
- Concentration (including solids in suspension).—1,160 parts per million.

Allowing for the inclusion of suspended solids in the figure for concentration, the water is comparable in concentration to the Lakes Entrance upper water, but has a lower sulphate content.

Gas.

A sample of gas marked "1,083 feet" was analysed (499/400), and shown to contain:—

Carbon dioxide	Trace
Oxygen	1%
Nitrogen	51.1%
Methane	47.9%
	100.0%

(The company has since stated that this sample was obtained from 1,738 feet in No. 1 bore.)

Gas was first reported at 500 feet, and at irregular intervals thereafter.

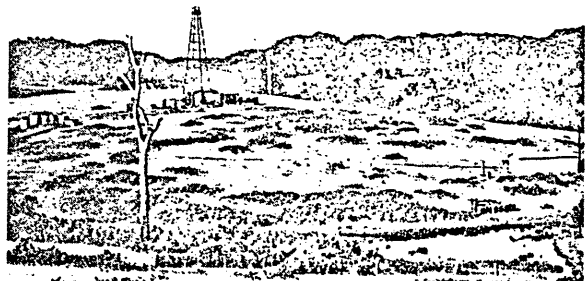
AUSTRAL OIL SYNDICATE.

FOSTERS BORE. W402

This bore was drilled in 1936 to a depth of 1,259 ft. 10 in., and some oil was produced by pumping. After a period of suspended operations during the time that the Imray bore was in progress, work was resumed at Fosters bore early in 1940, and an attempt has been made to shut off the water that was entering at the bottom of the bore. A cement plug was built up to 1,259 feet, and it is reported that bailing tests conducted since then indicate that at least a partial shut-off has been effected.

IMRAY BORE. W404

Bailing tests are conducted from time to time to determine the amounts of oil and water accumulating against the hydrostatic head of the fluid in the bore.



[Mona McLeod Photo.]

Fosters Bore, Lakes Entrance.

On 13th May and 13th July, 1940, I witnessed two of these tests, at which the results were as follows:—

	13th May.		13th July.	
Top of fluid column ..	481 feet from surface	..	388 feet from surface	..
" " water column ..	1,174 " " "	..	1,154 " " "	..
Depth of oil column ..	693 feet " " "	..	886 feet " " "	..
" " water column ..	100 " " "	..	120 " " "	..
Amount of oil ..	849 gallons ..	..	1,074 gallons	..
" " water ..	122.5 " " "	..	147 " " "	..
Time of accumulation ..	38 weeks, 4 days	..	47 weeks, 2 days	..
Rate of accumulation—				
Oil	22.0 gallons per week	..	22.7 gallons per week	..
	3.1 " " " day ..	..	3.2 " " " day	..
Water	4.4 " " " week ..	..	4.1 " " " week	..
	0.6 " " " day ..	..	0.6 " " " day.	..

(NOTE.—The syndicate states that (a) the depth of the bore is 1,274 feet, (b) accumulation commenced on 17th August, 1939, and (c) 49 gallons of water were removed on 15th October, 1939.)

These figures suggest that my previous estimate of the formation pressure (vide *Mining and Geological Journal*, Vol. 2, No. 1, July, 1939, p. 64) was too low, as the rise of the fluid to a height of more than 800 feet in the bore cannot be accounted for by the pressure of artesian water, which apparently has not yet entered the bore. [16.7.1940.]

Oil.

The company reported that the first traces of oil were obtained when drilling was in progress between 637 and 705 feet. At a depth stated to be 1,484 ft. 6 in. a faint film of oil was seen by me on the water brought up in the bailer while cleaning out after the first few inches of bedrock had been entered. While the bore was at the same depth the casing was pulled back and small quantities of oil were obtained, apparently from the sands immediately above bedrock where the company had reported "struck oil" at 1,482 feet. The occurrence of oil at the base of a series which here and elsewhere is completely saturated with water is most unusual.

No. 2 BORE. W430

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- To 208' .. Sand, clay, and gravel.
- 208'-372' .. Shelly marl.
- 372'-1,106' .. Polyzoal limestone and marl.

The present depth is reported to be 1,106 feet, at which it is stated that the limit of the plant has been reached, but that arrangements will be made to continue operations when a heavier plant is available.

Water.

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- Sulphates.—30 parts per million—3 per cent.
- Carbonates and bicarbonates.—310 parts per million—26 per cent.
- Concentration (including solids in suspension).—1,160 parts per million.

Allowing for the inclusion of suspended solids in the figure for concentration, the water is comparable in concentration to the Lakes Entrance upper water, but has a lower sulphate content.

Gas.

A sample of gas marked "1,083 feet" was analysed (499/400), and shown to contain:—

Carbon dioxide ..	Trace
Oxygen ..	1%
Nitrogen ..	51.1%
Methane ..	47.9%
	100.0%

(The company has since stated that this sample was obtained from 1,738 feet in No. 1 bore.)

Gas was first reported at 500 feet, and at irregular intervals thereafter.

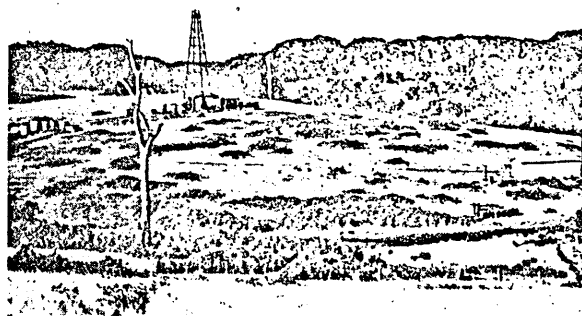
AUSTRAL OIL SYNDICATE.

FOSTERS BORE. W402

This bore was drilled in 1936 to a depth of 1,259 ft. 10 in., and some oil was produced by pumping. After a period of suspended operations during the time that the Imray bore was in progress, work was resumed at Fosters bore early in 1940, and an attempt has been made to shut off the water that was entering at the bottom of the bore. A cement plug was built up to 1,259 feet, and it is reported that bailing tests conducted since then indicate that at least a partial shut-off has been effected.

IMRAY BORE. W404

Bailing tests are conducted from time to time to determine the amounts of oil and water accumulating against the hydrostatic head of the fluid in the bore.



[Mona McLeod Photo.]

Fosters Bore, Lakes Entrance.

On 13th May and 13th July, 1940, I witnessed two of these tests, at which the results were as follows:—

	13th May.	13th July.
Top of fluid column ..	481 feet from surface	388 feet from surface
" " water column ..	1,174 " " "	1,154 " " "
Depth of oil column ..	693 feet " " "	886 feet " " "
" " water column ..	100 " " "	120 " " "
Amount of oil ..	849 gallons	1,074 gallons
" " water ..	122.5 " "	147 " "
Time of accumulation ..	38 weeks, 4 days	47 weeks, 2 days
Rate of accumulation—		
Oil ..	22.0 gallons per week	22.7 gallons per week
	3.1 " " day	3.2 " " day
Water ..	4.4 " " week	4.1 " " week
	0.6 " " day	0.6 " " day.

(NOTE.—The syndicate states that (a) the depth of the bore is 1,274 feet, (b) accumulation commenced on 17th August, 1939, and (c) 49 gallons of water were removed on 15th October, 1939.)

These figures suggest that my previous estimate of the formation pressure (vide *Mining and Geological Journal*, Vol. 2, No. 1, July, 1939, p. 64) was too low, as the rise of the fluid to a height of more than 800 feet in the bore cannot be accounted for by the pressure of artesian water, which apparently has not yet entered the bore. [16.7.1940.]

PE904133

This is an enclosure indicator page.
The enclosure PE904133 is enclosed within the
container PE904131 at this location in this
document.

The enclosure PE904133 has the following characteristics:

ITEM_BARCODE = PE904133
CONTAINER_BARCODE = PE904131
NAME = well card
BASIN = GIPPSLAND
PERMIT =
TYPE = WELL
SUBTYPE = well card
DESCRIPTION = well card Forsters Bore
REMARKS = abandoned 1936
DATE_CREATED =
DATE_RECEIVED =
W_NO = W402
WELL_NAME = Forsters Bore
CONTRACTOR = Austral Oil Drilling Syndicate NL
CLIENT_OP_CO = Austral Oil Drilling Syndicate NL

(Inserted by DNRE - Vic Govt Mines Dept)