

TR7-28-36

7. DEEP DRILLING NEAR LATROBE

by K. L. Burns

ABSTRACT

This Report has been written to correct errors and ambiguities in a publication by Reid (1924). The author found them while searching for collar locations of boreholes sunk in 1922-23 and one in 1928 in the search for natural oil. As this report was compiled as part of the preparation of the Devonport Map Sheet, no attention has been given to a number of bores sunk further south in the Sheffield Quadrangle.

INTRODUCTION

In the period 1921-28 a number of deep boreholes were sunk in the Latrobe area by the Mersey Valley Oil Company (A. Wauchope and Capt. de Hautpick), the Tasmanian Oil Company (G. D. Meudell), and the Adelaide Oil Exploration Company (J. H. M. Moate and E. J. Stott).

Operations were directed initially to the Permian System, between Devonport and Native Plains, but following the announcement of oil seepages near Sassafra attention was transferred to the Tertiary rocks.

A group of bores between Moriarty Road and Harford established the presence of the Northdown Deep Lead, which goes down to about 1,000 feet below sea level, with terrestrial sediments to the bottom. Accordingly, the drills were moved north, to the coast at Northdown, to look for marine intercalations. Only one bore, the Northdown Beacon, was likely to have found Tertiary rocks.

About £20,000 was spent in this exploration ("The Mercury" 16/11/37) which provided invaluable information on the subsurface geology of this area. The information is of some general interest as it affects notions of the structure of Bass Strait and of the Launceston and Macquarie Harbour areas of deep Tertiary deposits.

However, almost the only source of information on this drilling is Reid (1924), and a number of significant errors have been found in this compilation. Reid compiled his report from second-hand information some time after completion of the bores (see Reid, 1924, pp. 14-15), in ignorance of the detailed local geology and topography.

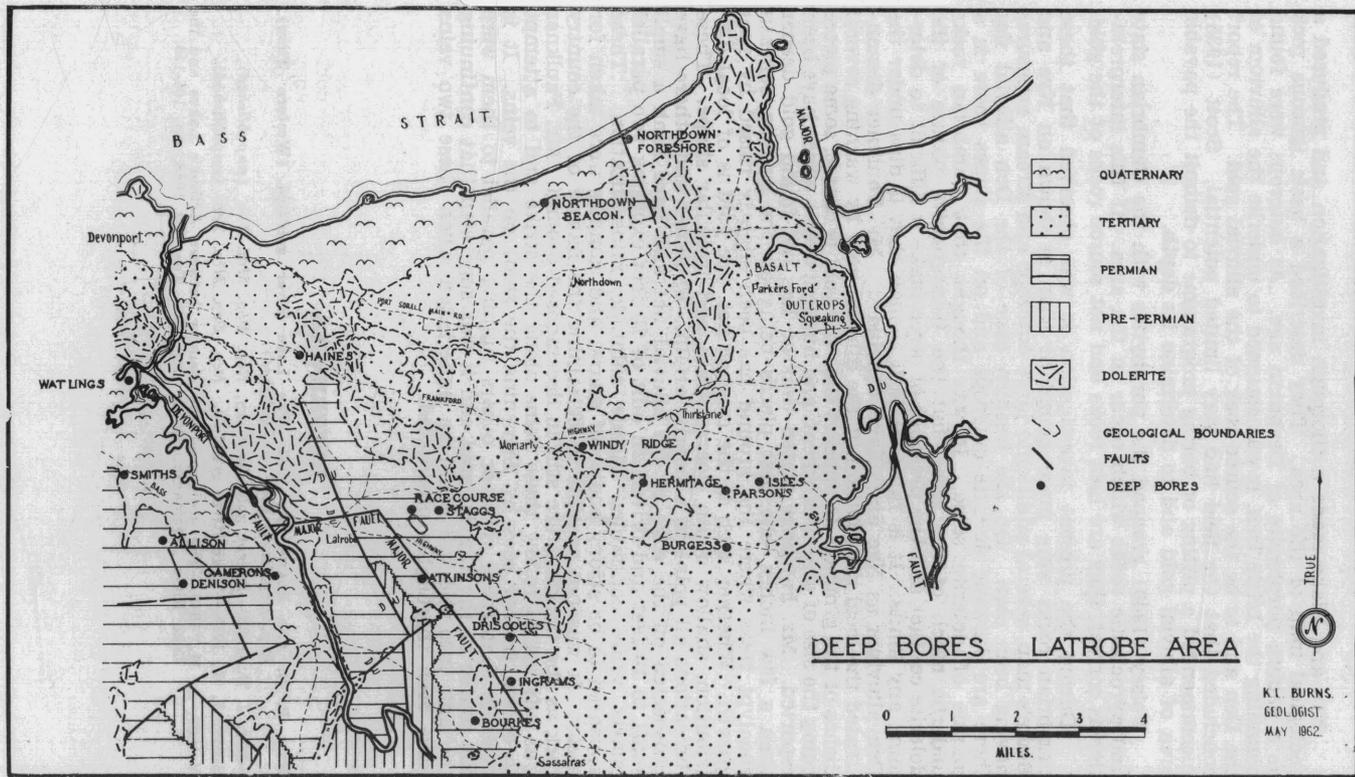
Using information not available to Reid, but relying heavily on his compilation, the author presents this report as a corrected statement of bore locations and drilling results. The geology will be evaluated elsewhere in conjunction with the results of the regional mapping.

CORRECTIONS TO REID (1924).

The collar positions shown on Reid's map are frequently incorrect. These errors appear to have arisen because the drilling concerns sometimes specified locations in terms of the contemporary landowners, but Reid used a cadastral base map which recorded only the original landowners.

5 cm

FIGURE 8.



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The collars were relocated by ground inspection supplemented by a title search, and the bores identified from the geology around the collar, recovery of some core, and recorded descriptions of the bore sites.

Core recovery was usually poor in the basal Permian conglomerate, so that Reid found some difficulty in identifying basement. In the accompanying sections, Reid's interpretations have been altered to comply with Nye (1928) who examined this aspect carefully.

In four bores just east of Latrobe, "diorite with quartz veins" is mentioned. This rock appears to have been a thin sill of zeolitic dolerite intruded at or near the base of the Permian. A thin sill in this position outcrops near the Bott Gorge, and on the right bank of Rays Creek, Nook.

A rock interpreted as "mudstone with basalt pebbles" was found in some bores. On this evidence, Reid considered Driscoll's Bore to have been sunk entirely in Tertiary deposits. However, mapping shows that the bore passed through a few feet of Tertiary sands into Permian pebbly mudstone. The "basalt pebbles" of the drillers' logs are pebbles of fine grained blue quartzite.

In two cases Reid interchanged bores. In the case of the two bores near Latrobe Racecourse ("Racecourse" and "Stagg's" Bores of this report), it appears that Reid was supplied with an incorrect or inadequate description of Bauld's block. The error is apparent when drilling results are compared with the regional mapping. The same is true of the interchanged logs of "Ingram's" and "Bourke's" Bores.

It is not proposed to give a detailed analysis of Reid's errors, but, rather, a summary of verified information. Figure 8 (Locality Map) shows the established collar locations. Figures 9 and 10 (Stratigraphic Columns) show the amended interpretation of the drilling results. The bores have been given arbitrary names on the diagrams and in the discussion below to avoid the difficulties with Reid's numbering.

ACKNOWLEDGMENTS

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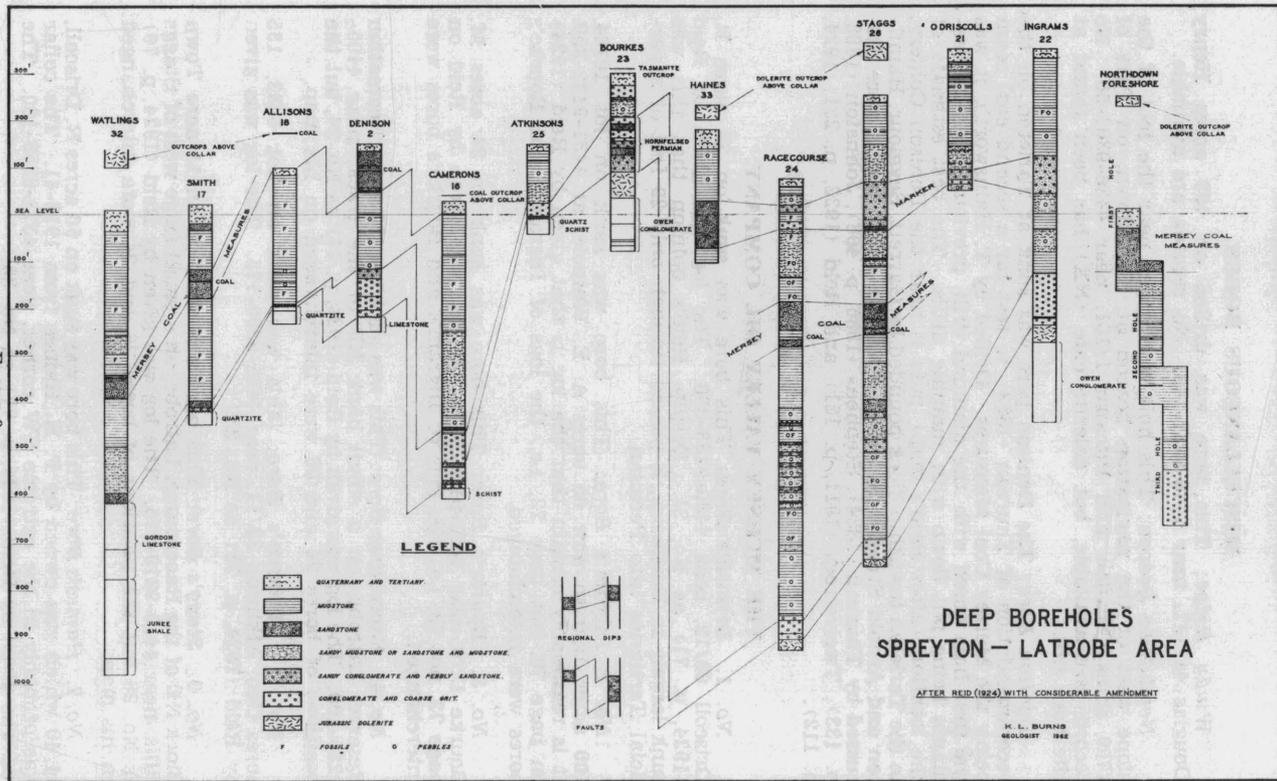
LOCATIONS

References to locations are given in two ways.

A description such as "On part of Lot 6833, 135 acres, Geo. Atkinson, 33/11" refers to a remnant portion of the original Lot 6833 of 135 acres granted by the Crown to Geo. Atkinson. This is the description on the cadastral map issued by the Department of Lands and Surveys, Hobart, the numbers being a reference to the survey plan.

A term such as 4400-9817-150 refers to a co-ordinate on the State Mapping Grid, being 440,000 yards east and 981,700 yards north of an arbitrary reference point, and 150 feet above sea level, based on the Devonport topographic map sheet prepared by the Department of Lands and Surveys.

FIGURE 9.



MISCELLANEOUS BORES

Windy Ridge: This bore was drilled on 193 acres Henry Douglas 4a/111, near 4448-9237-140. No records are available.

Northdown Beacon: This hole was drilled near the foot of the slope west of the navigation beacon at Northdown, on Part of 1700 acres Gleadow and Pitcairn 1/151, near 4436-9303-50. No records are available, but dolerite core (NX) has been found at the bore site.

Denison Bore: The Denison bore was sunk at Tarleton on the recommendation of Thureau (1883) to test for a second coal seam below the Mersey Coal Measures. Drilled by T. Hainsworth, it was the first hole bored with the diamond drill, previous bores in Tasmania being put down with jumping drills. The best estimate of the location (after Reid's map) puts it near the Denison Colliery, in the Tarleton township block bounded by Garrett, Seymour, Hamilton and Arnold Streets, near 4338-9204-150. The results were discussed by Thureau (1884), Stephens (1886, p. 406), Johnston (1888, p. 133), Twelvetrees (1911, p. 121) and Reid (1922, p. 221; 1924, p. 112).

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No. 1. Driscoll's Bore: This bore was sunk on 35 acres R. Driscoll 68/12, near 4430-9183-350. The log was given by Reid (1924, p. 71) as No. 21. Despite Reid's opinion that this was sunk largely in Tertiaries, it passed through only 29 feet of superficial Tertiaries into Permian.

No. 2 Ingram's Bore: This bore was sunk on lot 10184, 100 acres Ingram now 65 acres A. E. Walpole, at 4431-9172-350. It is reasonably certain that the log is that given by Reid (1924) on page 73, not page 72, i.e., the logs of Ingram's and Bourke's bores were interchanged.

No. 3. Bourke's Bore: This bore was sunk on 24 acres M. Bourke 12/6 near 4421-9159-300. The log was given by Reid on page 72, not 73, i.e., the logs of Ingram's and Bourke's bores were interchanged.

No. 4. Racecourse Bore: This was sunk on 159 acres Recreation Reserve, Latrobe, on a small bank NE of the track, near 4405-9219-100. The log was given by Reid (1924, p. 74) as No. 24, but the positions of bores 24 and 26 were interchanged on his map.

No. 5. Atkinson's Bore: This was sunk on Lot 6833, 135 acres Geo. Atkinson 33/11, near 4405-9200-175. The log was given by Reid (1924, p. 75) as No. 25.

No. 6. Stagg's Bore: This bore was sunk on an 11 acre Town Block NE of the Racecourse, Latrobe, on a small ridge west of Staggs Hills, near 4410-9219-175. The log was given by Reid (1924, p. 76) as No. 26 but the positions of bores 26 and 24 were interchanged on his map.

No. 7. Haines's Bore: This bore was sunk on 50 acres R. Driscoll, 44/40 which was owned by F. H. Haines from 1913-41. The collar was probably in the extreme SW corner, near 4373-9259-180. The log was given by Reid (1924, p. 77) as No. 33.

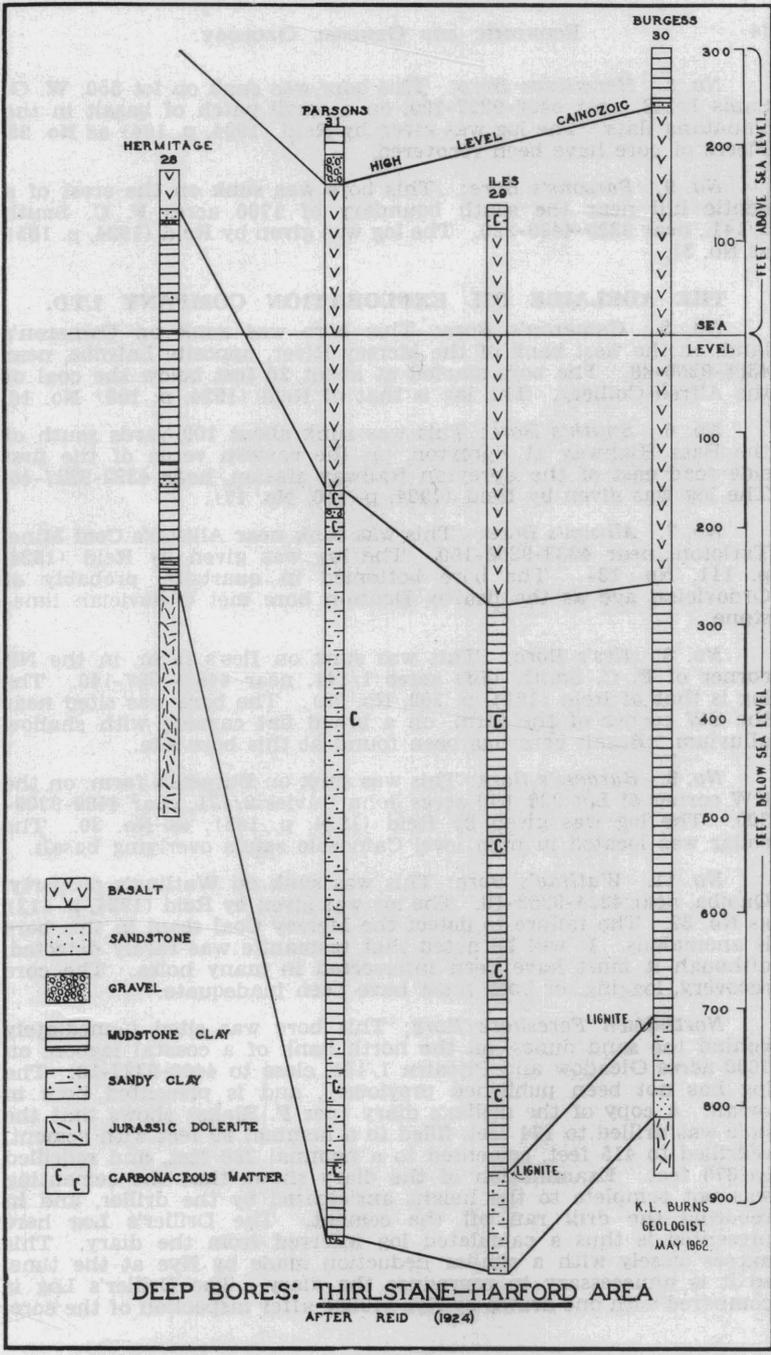


FIGURE 10.

No. 8 *Hermitage Bore*: This bore was sunk on lot 550, W. G. Sams 1/143, near 4466-9227-150, on a small patch of basalt in the Panatana flats. The log was given by Reid (1924, p. 104) as No. 28. Pieces of core have been recovered.

No. 9. *Parsons's Bore*: This bore was sunk on the crest of a gentle hill near the south boundary of 1700 acres F. C. Smith 1/141., near 9225-4489-220. The log was given by Reid (1924, p. 105) as No. 31.

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No. 5. *Cameron's Bore*: This bore was sunk on Cameron's land, on the west bank of the Mersey River, opposite Latrobe, near 4365-9200-30. The bore started at about 20 feet below the coal of the Alfred Colliery. The log is that of Reid (1924, p. 109) No. 16.

No. 6. *Smith's Bore*: This was sunk about 100 yards south of the Bass Highway at Spreyton, on the eastern verge of the first side road east of the Spreyton Railway station, near 4322-9227-40. The log was given by Reid (1924, p. 110, No. 17).

No. 7. *Allison's Bore*: This was sunk near Allison's Coal Mine, Tarleton, near 4333-9208-150. The log was given by Reid (1924, p. 111, No. 18). The bore bottomed in quartzite, probably of Ordovician age as the nearby Denison bore met Ordovician limestone.

No. 8. *Iles's Bore*: This was sunk on Iles's farm, in the NE corner of F. C. Smith 1700 acres 1/141, near 4489-9227-140. The log is that of Reid (1924, p. 102, No. 29). The bore was sited near the SW corner of the farm, on a broad flat covered with shallow alluvium. Basalt core has been found at this bore site.

No. 9. *Burgess's Bore*: This was sunk on Burgess's farm, on the NW corner of Lot 220, 640 acres John Davies 2/171, near 4489-9209-300. The log was given by Reid (1924, p. 103), as No. 30. The collar was located in high level Cainozoic sands overlying basalt.

No. 11. *Watling's Bore*: This was sunk on Watling's property, Quoiba, near 4324-9253-10. The log was given by Reid (1924, p. 113) as No. 32. The failure to detect the Mersey Coal seam in this bore is anomalous. It will be noted that tasmanite was rarely detected, although it must have been intersected in many holes. The core recovery, logging, or both must have been inadequate.

Northdown Foreshore Bore: This bore was sited immediately behind the sand dunes, on the north bank of a coastal lagoon, on 1000 acres Gleadow and Pitcairn 1/151, close to 4460-9322-10. The log has not been published previously, and is presented here in detail. A copy of the driller's diary (per F. Blake) shows that the hole was drilled to 174 feet, filled to a nominal 80 feet with cement, redrilled to 415 feet, cemented to a nominal 288 feet, and redrilled to 676 feet. Examination of the diary shows that the cementing was not complete to the height anticipated by the driller, and in reboring the drill ran off the cement. The Driller's Log here presented is thus a calculated log inferred from the diary. This agrees closely with a similar deduction made by Nye at the time, so it is unnecessary to reproduce the diary. The Driller's Log is compared with one drawn by Nye (1928) after inspection of the core.

Driller's Log			Nye's Log (where different)		
Footage	Lithology	Thickness ft	Footage	Lithology	Thickness ft
	<i>Quaternary</i>			<i>Quaternary</i>	
0-14	Sand	14			
14-29	Pebbles	15	14-22	Pebbly wash ..	8
29-40	Pebbles and clay	11			
	<i>Permian</i>			<i>Permian</i>	
40-135	Sandstone	95	22-139	Sandstone	117
135-160	Mudstone	25	139-160	Mudstone	21
160-187	Mudstone and sandstone ..	27			
187-274	Mudstone	87			
274-279	Mudstone and pebbles	5			
279-300	Mudstone	21			
300-338	Pebbly mud- stone	38			
338-373	Solid mud- stone	35			
373-415	Mudstone and pebbles	42			
415-496	Mudstone	81			
496-515	Pebbly mud- stone	25			
515-540	Mudstone and pebbles	25			
540-555	Pebbly mud- stone	15	496-555	Mudstone with pebbles	59
	<i>Precambrian?</i>				
555-676	Quartzite (?Lime- stone)	121	555-641	Quartzite pebbles and boulders in sandy sedi- ment	86
			641-674	Quartzite and pebbles	33
				<i>Precambrian?</i>	
			674-676	Quartzite	2

Nye described the sandstone as medium grained, with abundant mica flakes and pieces of carbonaceous seams and thicker, friable seams of dark mudstone. These are the Mersey Coal Measures.

The mudstone is dark, bluish grey, with some beds of pebbles. Fossils include *Fenestella*, *Spirifera*, *Conularia*, gastropods, and leaf fragments.

Little core was recovered below 555 feet. Nye found that the first unit below the mudstone was an argillaceous pebbly sandstone. Beneath this were meta-sandstone and quartzite with much calcite. These do not appear to be bedrock, but 'pebbles and boulders in a loosely compacted sandy matrix, with pebbles or lenses of calcareous material'. The description 'Quartzite (?Limestone)' in other logs is almost certainly the same rock, a basal Permian calcareous conglomerate.

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