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COMPILATION OF GEOLOGICAL AND BORE-HOLE DATA FROM SOUTH-WESTERN VICTORIA AND THE CONTIGUOUS PART OF SOUTH AUSTRALIA, WITH PARTICULAR REFERENCE TO THE PORTLAND - NELSON - MT. GAMBIER AREA.

By

B.H. STINEAR

Petroleum Technologist.

Melbourne. 1st December, 1948.

Compilation of Geological and Bore-hole Data from South-Western Victoria and the contiguous part of South Australia, with particular reference to the Portland - Nelson - Mt. Gambier Area.

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TABLE OF CONTENTS

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INTRODUCTION.

Geographical Outline of Area.

The area covered by the report includes that part of South Australia and Victoria between Latitude 36° 00' South and Lat. 38°30' South, and Long. 139°30' East and Long. 142°30' East. Military Survey Maps of the 4 Mile Series, as listed below, have been taken as the base maps for the area under discussion:-

(1) South Australia

- (a) Naracoorte
- (b) Penola

(2) Victoria

- (a) Horsham
- (b) Hamilton
- (c) Portland

The area under review comprises the lands embraced within the boundaries of the following Counties:-

(1) South Australia

- (a) Cardwell
- (b) Buckingham
- (c) Mac-Donnell
- (d) Robe
- (e) Grey

(2) Victoria

- (a) Lowan
- (b) Borung
- (c) Dundas
- (d) Follett
- (e) Normanby
- (f) Villiera (Part)

Basis of the Report

Regional geological maps have been published for both the States concerned, by the State Departments of Mines and detailed maps as listed below are available for part of the area:-

Victoria 40 chains to 1 inch

(1) County of Follett

Parishes

(a) Bahgallah
(b) Dartmoor
(c) Dergholm
(d) Kinkella
(e) Mumbannar
(f) Palpara
(g) Roseneath
(h) Wanwin
(i) Werrikoo
(j) Wilkin

(2) County of Normanby

Parishes

(a) Balrook
(b) Drik Drik
(c) Glenelg
(d) Kentbruck
(e) Killara
(f) Myaring
(g) Warrain

No detailed geological reports of the area have been published, although it has been reported that R.C. Sprigg of the S.A. Department of Mines has been engaged on a geological survey of Southeast South Australia, and his report is to be available towards the end of 1948.

The scope of direct geological information in the areas underlain by marine Tertiary rocks is severely limited, by very poor exposure of the underlying rocks at the surface. Under such conditions, once the scattered exposures have been examined and recorded on the map, little more can be done by surface work; the geologist is thrown back on a study of well and bore records and of the results of geophysical measurements. Considerable literature has been read and records of the principal bores in the area have been examined in detail. Tables 1 - 3 show the most important wells and bores drilled in the area.

It has been recommended that a geophysical survey of the area be conducted, to determine, if possible, any structural features which might exist at depth in this southernmost extension of the Murray River Artesian Basin, which is made up of Tertiary to Recent formations, resting, in the area under review, on a basement of Pre-Cambrian or Jurassic Rocks.

A bibliography of the principal literature consulted has been appended.

OIL PROSPECTING IN THE AREA

One of the earliest bores drilled for oil was at Alfred Flat in the Coorong District, which was drilled in 1892 to a depth of 922 feet. Altogether 27 bore-holes have been drilled in search of oil in the area of South Australia now under discussion, with a total recorded footage of about 30,000 feet. The whole of the drilling has been carried out by local prospecting companies. In Victoria, numerous deep bore-holes have been drilled for water and some 32 bores, with a total recorded footage of approximately 20,000 feet, have been drilled for oil. The deepest of these bores was the Government bore, at Nelson, which was drilled to a depth of 7,305 feet.

The oil prospects of South Australia were investigated by Dr. A. Wade, who published his comprehensive report in 1915. A report for Commonwealth Oil Refineries, "Review of Oil Prospects in South Australia and Victoria", was published in 1938 by Dr. K. Washington Gray and I.C.H. Croll.

GENERAL GEOLOGY

The region is generally surfaced by a thin veneer of sand, travertine and dune limestone, of Recent to Pleistocene Age.

Stratigraphy

Archean

Between Kingston and the Murray Bridge - Serviceton railway, outcrops of the Archean rocks have been mapped, and there are some exposures between the Murray and the Mount Lofty Ranges.

Pre-Cambrian

Crystalline schists and gneisses, granite, pegmatite and lamprophyre are recorded in bores and cliff sections on Yorke Peninsula; in the Mount Lofty Ranges; in bores and as inliers east of the Coorong; in the Upper Glenelg Valley and in the Bushy Creek area. Sedimentary rocks assigned to the Pre-Cambrian include sandstones, quartzites, slate and phyllite, and occur in the Mount Lofty Ranges; as inliers east of the Coorong; and in the Upper Glenelg.

Their relation to the crystalline rocks is obscure and relatively little is known about the series as a whole. Large scale earth movements have affected these later Pre-Cambrian sedimentary rocks throughout their extent, and many of them are strongly folded and faulted.

Palaeozoic

Cambrian

In the Parish of Dergholm, County of Follett, Cambrian granites have been reported from outcrops along the Glenelg River about 6 miles north-northeast of Dergholm township, and also from scattered locations along the upper reaches of Salt Creek. Similar Cambrian granites outcrop along Laidlow's Creek, just south of Dergholm township, in the Parish of Roseneath. The granites are also found near Graham's Swamp, 4 miles southwest of Dergholm. A small exposure of Cambrian diabase occurs about 3 miles south of the township.

The fossiliferous marine beds of Cambrian age, consisting essentially of limestone and dolomites, have shared in the folding and faulting that have affected the older foundations.

Ordovician

Steeply folded sandstones, shales, grits, slates and mudstones of Lower Ordovician age are exposed in the eastern highlands region between the 142nd. and 145th. meridians. In the Parish of Dergholm, Ordovician slate and hornblende biotite gneiss have been reported from near the Glenelg River, just south of the outcrops of Cambrian rocks. Acutely folded indurated slates and sandstones of Ordovician age outcrop along the Glenelg River, 3.1/2 miles east-southeast of Dergholm township. The fossiliferous beds of the eastern highlands lie conformably on the unfossiliferous Cambrian strata. There are no proven Ordovician rocks in South Australia, although rocks occupying a narrow belt on the northern coast of Kangaroo Island may possibly be of this age.

Silurian and Devonian rocks are not represented in the area, which carries no trace of marine sedimentation throughout the whole of the later part of Palaeozoic time.

Permo-Carboniferous

A widely distributed glacial tillite with fluvio-glacial conglomerates and agrillaceous sandstone has been classed as Permo-Carboniferous age. The tillite is recorded from a number of localities ranging from Yorke Peninsula (S.A.) to Beechworth (Vic.), so that it would seem that present exposures are remnants of a much more widely distributed deposit. A maximum thickness of 1,030 feet is estimated in South Australia and not more than 2,000 feet in Victoria.

The tillite is known to occur at depth below Hindmarsh Island at the Murray Mouth, and at Alfred Flat between the Coorong and Tintinara, where it has been found by boring, but does not outcrop. In the Coorong Oil Company's bore drilled in 1922, 421 feet of the tillite were penetrated before Pre-Cambrian slates were entered at 924 feet. No coal measures, nor any marine deposits of Permo-Carboniferous age have been found at any place, associated with the tillite.

The tillites rest upon Pre-Cambrian and Cambrian foundations and are overlain in some places by marine Tertiary beds.

Mesozoic

Jurassic

Green felspathic sandstones, sandy shales and conglomerates, to which a Jurassic age is assigned, are met in numerous boreholes and exposures in the area. These rocks are of lacustrine origin and throughout southern and eastern Australia no marine Jurassic rocks are known. A marine facies in the Jurassic is unlikely since both at Robe and in the Otway Ranges, it is lacustrine, and there is a probability therefore, that land was present to the southwest in Jurassic times. Bituminous coals of moderate quality occur in thin seams and lenticles. The beds are commonly horizontal, but frequently show local dips of 10° - 30°. There is no clear evidence of folding and such disturbance as is shown is probably due to Tertiary faulting. The sands which constitute the principal aquifer of the Grant Artesian Basin in the north-eastern part of South Australia are of Jurassic age. No marine fossils have been recognised in the sands, but fragments of lignite occur in them.

The Jurassic coal measures which outcrop in Western Victoria in the Casterton-Coleraine district extend westwards below the surface into South Australia, where their presence has been proved by the deep borehole near Robe, which penetrated the Jurassic sediments at 1,475 feet. No other borehole in the southeastern region of South Australia has penetrated to a sufficient depth to reach these measures which are presumed to exist in depth beneath a large part of the area lying to the south of the railway between Naracoorte and Kingston, although they do not underlie the Tertiary beds close to Kingston itself. The borehole drilled near Lake Cooie in Victoria, after passing through Tertiary sediments, entered the Jurassic measures at 509 feet and continued in them to the bottom of the hole at 1,171 feet. The rocks consist of thin bedded greenish or bluish grey shales and fine grained argillaceous sandstones with a few thin beds of limestone and some thin coal seams. These Jurassic beds probably extend southwards beneath the Recent and Tertiary cover, from the exposures at surface in the Casterton district.

Generally, beds of Jurassic age were deposited in a broad belt of low-lying swampy land, probably on the margin of the Jurassic sea, the accumulation of the sediments proceeding gradually with the slow submergence of the swampy zone. No evidence has been found yet of marine transgression over this swampy depression while Jurassic sedimentation was in progress.

No Triassic or Cretaceous rocks are known to exist in the region, even at depth, nor any representatives of the lowest division of the Tertiary.

Cainozoic

The next series to be deposited were the alternating sands, gravels and lignites or lignitic clays, covered by the limestones containing many fragmental remains of polyzoa, echinoderms and corals, with a few brachipods and lamellibranchs.

It would appear from the succession of beds that in Mid-Tertiary time there was a widespread submergence of the southern part of the continent, the lowest beds indicating deposition in coastal swamps or estuaries, subject to periodical submergence beneath shallow sea-water, and the upper beds suggesting conditions of submergence beneath a sea of moderate depth with formation of marine limestones. This deeper water of the ancient Murravian Gulf extended far inland, forming a great gulf now crossed by the River Murray and its tributaries. Towards the end of the Tertiary period the submerged area rose and this process of emergence has continued until the present day. During Pleistocene time the successive positions of the strandline were marked by dune ridges oriented in general parallelism with the present coast line. The latest phase of the general elevation of the region was marked by the volcanic activity at Mount Schank, Mount Gambier, Mount Burr, Mount Muirhead and the craters in which Lakes Leake and Edward lie. Between the dune ridges there have been deposited discontinuous shallow beds of clay, silt and peaty marl from the earliest period of emergence down to the present day.

Correlation

There has been much dispute about the correlation of the Tertiary deposits of southern Australia. A broad lithological division is possible and avoids the necessity of adopting any one set of age determinations. However, for the purpose of this report, the ages as determined by Miss Crespin and as set out in her report on the Tertiary rocks of Gippsland, have been adopted.

The lignitiferous series at the base of the Tertiary, is regarded as being in general, of fluvio-lacustrine origin, but locally, there are marine intercalations. Occasional foraminifera have been recorded from several bores, which have penetrated this series. The series has been assigned to the Anglesean Stage, of Lower Middle Miocene age. The overlying series of marine foraminiferal and polyzoal limestones and marls attain a considerable thickness, reaching 2,100 feet at Portland. At the base of this marine series in the Gippsland area, there is a bed of oil-bearing glauconitic sandstone, but this horizon is not found in the south-west. Parts of the marine series bear thin streaks of lignite, but the development is not to be compared with that of the main lignitic series. The marine series has been placed in the Balcombian and Janjukian Stages of Middle Miocene age.

The sharp lithological break between the sands and the limestones has been cited as proof of an unconformity, but the foraminifera of the marine intercalations in the sands and of the limestones do not suggest any hiatus. The fauna of the Balcombian, Janjukian and Anglesean Stages have been shown to be closely related, and are regarded as being of Middle Miocene age.

In the area under review, the marine series is overlain by extensive basalt flows referred to as the "Newer Basalt"; or by recent sands and travertine. The basalts are of late Pliocene to Pleistocene age.

The Tertiaries attain a thickness of about 1,450 feet in the Robe bore, while at Portland the Polyzoal series alone attained a known thickness exceeding 2,100 feet. At Nelson, the bore passed through approximately 900 feet of the Polyzoal series, and was still in the Tertiary lignitiferous series at 7,305 feet.

Localities

The principal Tertiary exposures in the area are at Mount Gambier and the Glenelg River cliffs from Casterton to Nelson. In the Parish of Dartmoor, north of Dartmoor township, ligneous sands and clays of the lignitiferous series outcrop along the Glenelg River for approximately 2.3/4 miles.

General Section

A generalised section, showing approximate age and sequence of strata met with in the area, can be given as follows. In no one place can all of these beds be found in association. Some of the strata shown are only to be found in certain localities; others show considerable variation as they are traced from place to place.

1. Sandhills, blown sands and alluvium - Recent.
   These include the shifting sands of the coastal sand dunes and the loose sand which extends far inland and forms the sand dunes of the interior.

2. Older sandhills, loose or partly consolidated - Recent to Pleistocene. The blown sands of (1) especially the more calcareous types tend to become cemented and consolidated in the course of time. During this process, the old structure is well preserved.

3. Travertine - Recent to Pleistocene.
   This is a more or less massive limestone. It varies from compact and solid to a cellular or almost cavernous structure. It covers vast areas of country, but is nowhere more than a comparatively few feet in thickness.

4. Lateritic Ironstone.
   Where the blown sand cover is siliceous rather than calcareous, deposits of limonite are formed, again only a few feet thick at the most.

5. Fossiliferous limestones - Pliocene.
   Underneath the material described as (1), (2), and (3), there occurs in a few isolated places, a cream coloured limestone, rich in marine fossils.

6. Sands, Clays and Thin Lignite Beds.
   In other places, under the same beds, occurs a series of loose sands containing marl and clay, sometimes lignitic in character. These beds are aeolian and shallow water types and are subject to rapid lateral variations and so vary a good deal in thickness.

7. Miocene (Janjukian) limestones and flint beds. This fossiliferous marine limestone series is of distinctive buff color. The limestones are associated with beds of nodular flints and bedded cherts. The series, in places, is pierced by -

8. Basalts, which have been poured out of the extinct volcanoes of the Mount Gambier district, in Upper Pliocene to Pleistocene time.

9. Lignitic sands and clays (Anglesean) - lignitiferous series of Lower Middle Miocene age.

10. Greenish-grey shales and fine grained argillaceous sandstones, sandy shales and conglomerates, in which occur thin seams of bituminous coal - Jurassic age.

11. Glacial beds, tillites - Permo-Carboniferous age. Met at 503 feet in bore in County of Cardwell.

12. Steeply folded sandstones, shales, grits, slates and mudstones of Ordovician age.

13. Granites, diabases and fossiliferous limestones and dolomites all of Cambrian age.

14. Crystalline schists, sandstones and quartzites - Pre-Cambrian

GEOLOGICAL HISTORY

The geological history of the Murray River Artesian Basin is concerned with earth movements that are more complex than those involved in a mere simple subsidence and subsequent uplift. The subsidence began in Tertiary time and followed upon a long period of erosion during which a large part of southern Australia was reduced to the condition of a peneplain. The muds and clays containing lignite and the beds of sand and gravel that are characteristic of the lower horizons and are interbedded with marine strata, indicate oscillations of level, with alternating emergence and submergence of coastal swamps. The general tendency however, was one of subsidence and as the sea became deeper, the fragmental polyzoal limestone (Janjukian) was deposited in a broad gulf. This Tertiary sea also probably covered a wide expanse of Palaeozoic and Mesozoic rocks in western Victoria, although most of the sediments deposited in that sea have been stripped by erosion from the foundations outcropping near Casterton, Coleraine and Hamilton. Towards the close of the Tertiary there was a general uplift of Southern Australia.

Since the lower Palaeozoic there have been no large scale folding movements. From the Upper Devonian to the present day the area has been occupied by dry land or lakes and swamps, with only partial and occasional marine invasions, of which the Middle Miocene was the most extensive. A series of fissure eruptions, giving rise to the "Older Basalt" preceded this marine invasion, and a further series producing the "Newer Basalt" was associated with its termination.

The marine Tertiaries extend over a large area beneath the "Newer Basalt", while the Jurassic is present over a wide area, but not everywhere, beneath the Tertiaries. The ancient foundations of Pre-Cambrian age, consisting of slates, quartzites, crystalline limestone and intrusive bodies of granite and felspar porphyry, do not outcrop at any place in South Australia to the south of the railway between Naracoorte and Kingston. They have been reached by deep boreholes in the vicinity of Kingston.

The change of slope near the hundred fathom line, which is adduced as evidence of faulting, is present all round the Australian continent and marks the edge of the "Continental Shelf". When true scale profiles of the sea floor are prepared, it is seen that no abrupt fault scarp is necessary to explain the soundings. A gentle down-warping is sufficient. The average fall of the sea floor from the shore to the 100 fathom line off Cape Bridgewater, is 5 fathoms per mile, giving a slope of much less than one degree (0° 20'); beyond the 100 fathom line, the soundings show a fall of 30 fathoms per mile, which still, however, gives a slope of only 2 degrees. The slope beyond the 100 fathom line is considerably greater off other parts of the Australian coast, being 5-6 degrees off Gabbo Island and almost 7 degrees off Albany. The possibility of faulting is not excluded, but it remains quite hypothetical. It has been claimed that the land between Portland and Mount Gambier is divided into strips by persistent faults or abrupt down-warps parallel to the 100 fathom line, but on Cape Nelson, Cape Bridgewater and in the Glenelg River evidence for such structural control has not been found. There is some faulting on both Cape Nelson and Cape Bridgewater, but on the latter, the only fault whose direction can be measured, runs S 70 W - quite oblique to the 100 fathom line.

TOPOGRAPHICAL FEATURES OF THE AREA.

The topography of the South Australian region generally is that of a former submarine plain that has emerged from the sea by crustal upwarping; and has preserved, in the absence of active erosion, a succession of dune ridges capped with calcareous dune sand and fixed by the partial solution and redeposition of Calcium Carbonate. Between these successive dune ridges there are valleys most of which are nearly flat bottomed and broad when compared in width with the ridges. The valley bottoms are known to slope to the westward, and each valley is higher than that lying to the west of it. The ridges rise in general to heights of less than 200 feet above the valleys. Modifications of the topography have been affected at a few places by volcanic action which has given rise to accumulations of ash and scoria associated with other ejectamenta from the centres of violent explosion.

It appears probable that the emergence of the coastal region has taken place since the close of the Pliocene period in a series of uplifts between which there have been periods of stability. The dune ridges are oriented in general parallelism with the coastline of today, trending in a direction bearing north-north west - south-southeast, from the area facing Lacepede Bay to that bhhind Lake Bonney, but becoming less well defined and veering to adopt an approximately east - west trend to the south of Mount Gambier.

The Tartwaup Fault extending in a general southeast direction from near Millicent to Tartwaup has left its mark on the topography, even if modified by erosional forces. The elevated region in the eastern part of the Hundred of Comaum and the adjoining portion of Victoria, may possibily be a block left standing at a higher level while the surrounding country has showed in general, subsidence. Yet it is not known whether the margins of the elevated block are determined by faulting or whether the higher land, on the other hand, forms the crest of a structural dome. The surface level of this relatively high area falls in all directions - northwards towards Mosquito Creek; eastwards towards the Glenelg River; southwards towards the low-lying areas east of Penola and westwards towards the Rockly Castle swamp and low lying areas north of Glen Roy. It is known that faulting has occurred in the Naracoorte district, but the relationship of the high country in the Hundred of Comaum to any tectonic movements connected with this faulting has not been determined by detailed mapping. This late faulting took place, so far as can be seen, after the close of the Tertiary period. The older faulting, probably responsible for the truncation of the deeply-seated Jurassic sediments on their northern limb has left no mark on the topography.

The Robe bore, drilled to a depth of 4,504 feet, did not reach the foundations that underlie the Jurassic sediments; whereas the borehole near Kingston, T.D. 2,660 feet, reached the Pre-Cambrian bedrock at 484 feet from the surface. The Jurassic beds have been reached, as mentioned above, at a depth of 509 feet from the surface in a borehole 1,171 feet deep, drilled near Lake Cooie. These results obtained from boreholes indicate the probable existence of a major fault to the south of the Naracoorte - Kingston railway, and it seems probable that the age of the faulting is Pre-Tertiary. On the other hand, the effects of normal deposition and erosion could explain the conditions as outlined in these boreholes, and so faulting is not regarded as being necessary.

DETAILED CONSIDERATION OF THE AREA.

The underlying rocks of the area being considered, are almost everywhere obscured by superficial deposits of sand and travertine. In the southeastern district of South Australia, the surface is almost entirely occupied by low sandy ridges running roughly parallel with the coast and rarely exceeding an elevation of 200 feet. This type of country extends as far as 70 miles inland eastward from the coast and about 300 miles from north to south. This part of the country is devoid of any natural system of drainage, except by sinkholes and underground channels in the limestone near Mount Gambier. Inland, the blown sand is an almost general surface cover. Travertine forms a large part of the surface cover in the extreme southeast of South Australia around Mount Gambier and northwards towards Kingston. Travertine is rare in the country east of the Coorong.

Apart from the mapping by R.A. Keble and E.A. Rudd of areas in the Hundred of Blanche, the surface geology of the area under review is known only in general terms. In the Hundred of Blanche, omitting the superficial deposits, the stratigraphical sequence and thickness of the horizons are given as:-

(a) Polyzoal limestone and dolomites (Janjukian) - 900 feet measured in outcrop by Keble

(b) Lignitic sands, clays and gravels (Anglesean) - 1968 feet in Associated Bore
1838 feet in Knight's Dome No.2 Bore.

In the district north of the Kingston - Naracoorte Railway, the sandy cover is fairly shallow and outcrops of igneous rocks are very numerous. South of the railway, no granite or other Pre-Cambrian rocks have been observed to break the continuity of the surface cover.

Exposures along the Glenelg River and the results of Boring operations show that a large part of the area is underlain by marine polyzoal limestone, below which are the lignitiferous sands and clays of lacustrine origin with occasional marine intercalations. These beds represent a southern extension of the Miocene deposition in the Murray River Artesian Basin. Eastward of the Coorong District in South Australia for about 100 miles, granite is exposed at the surface at a number of points. "The Coorong" is a long narrow lake running south-eastward parallel to the coast from Lake Alexandrina, for approximately 90 miles. It is separated from the sea only by a ridge of sand dunes. In the adjacent district which has been called the "Coorong District" several long narrow ridges running roughly parallel to the present coast line are separated by low lying flats. This type of topography extends inland for some 50 miles. The ridges consist of semi-consolidated calcareous dune sand with a hard travertinized coating, while the flats are underlain by recent marine deposits. The ridges are old coastal dunes left behind by successive retreats of the sea.

Between the belt of granite outcrops and the sea, bores show that the Tertiary marine rocks vary greatly in thickness. In some places (Kingston district) Tertiaries overlie the Pre-Cambrian directly; in others (Coorong) they are separated from it by Permo-Carboniferous tillite; while further south at Robe the Tertiaries are much thicker and overlie Jurassic sandstones.

The greatest known thickness of marine Tertiary limestones in the region, is at Portland where a bore proved over 2,100 feet, of which the basal part contains some glauconite. These beds are very little disturbed. The bore at Nelson proved 7,305 feet of Tertiary sediments, where the lignitiferous series was entered at 989 feet; thus proving 6,316 feet of the Anglesean Stage. Shallow wells at Tantanoola and in the Hundred of Young, northwest of Mount Gambier, proved not more than 100 feet of limestone overlying the lignitiferous series. The Knight's Dome No.1 and Associated Bores entered the lignitiferous series at 80 feet and 142 feet respectively and the latter bore proved approximately 2,000 feet of the lignitiferous series without reaching the Jurassic. The basal 3,000 feet of strata in the Robe bore are assigned to the Jurassic on the basis of lithological analogies with the Jurassic sandstones of the Casterton - Coleraine district; these beds do not carry any evidence of marine conditions. The Jurassic beds may continue under the Mount Gambier district and further south, but this is merely surmise, since no borehole to date, has penetrated the whole series of Tertiary sediments in this southern district. Along the Glenelg River, about 4 miles north of Dartmoor township, in the Parish of Myaring, County of Normanby, Jurassic sandstones are exposed at the surface.

This is the most southerly reported outcrop of Jurassic sediments.

The sedimentary strata overlying the Pre-Cambrian rocks are, as far as can be observed, horizontal or at most, so slightly tilted from the coast inland, that the angle is too small to measure. They appear to be almost totally unaffected by any folding.

The deep basin as shown to exist in the southern part of the area under review, may be considered to be an extension of the Murray River Artesian Basin, with a possible structural barrier of Jurassic sediments extending from Robe through Comaum to Casterton.

DRILLING

A good deal of drilling both for oil and for water, has been done in the region under review. Tables 1, 2, and 3 list the principal bores and wells drilled in the area.

Records of Bores and Wells

The area under review has been divided into three regions:-

(a) Wimmera

(b) Glenelg

(c) South Australia

The records of bores and wells drilled in these regions have been divided into four parts:-

(1) Table showing bore number, location, name of bore, year drilled, depth

(2) Table showing bore number, location, elevation, depth, lithological subdivisions, etc., of strata penetrated in bore

(3) Table showing name of bore, bore number, location, name of Company, depth, report reference to bore.

(4) Logs of Bores.

Explanatory Notes to Tables.

Table 1. Records of bores and wells showing numbers, locations etc.

B.M.R. Number: The number which has been allotted for the purpose of this report, to each bore and well in the area.

Regional Number: The number which was allotted to bores and wells by C.S. Gloe in the publication "The Underground Water Resources of Victoria". Vol. 1.

Parish or Hundred: The name of the Parish or Hundred in which the well or bore is located.

Location:
Wimmera Region: In most cases the locations of the bores can be referred only to the Crown Allotments in which they were put down.
Glenelg Region: Nearly all the bores listed were put down by the Mines Department, hence their locations can be defined with some accuracy.
South Australia Region: Locations have been referred to Sections and Hundreds in which the bores were drilled.

Name or Owner:
Wimmera Region: Either the name by which the bore or well is known, or the owner's name.
Glenelg Region: The name and number given to the bores by the Mines Department. The Report Reference gives the reference to the report in which the records of the bores were published. Abbreviations used are:-

A.R. - Annual Report.

B.R. - Boring Records.

Depth of Bores and Wells: The depth in feet from ground surface to the bottom of each bore or well.

Table 2.
Records of bores and wells showing lithological subdivision etc. of strata penetrated in bores or wells.
R.L. Surface: Reduced Level, or height in feet above sea level of the ground surface. In each case, levels shown are to the nearest foot only. Depths recorded to lithological horizons are from ground surface.

Table 3.
Records of names of bores, B.M.R. Numbers, etc.
Name of Company: Name of Company for whom the bore was drilled.

Table 4.
Bore Logs.
Logs of bores put down by the Mines Department in the Glenelg Region have been published in the Annual Reports and Boring Records of that Department. The logs of the principal bores have been selected and are recorded under Table 4. Unless otherwise stated, all logs listed for the Glenelg Region are drillers' logs.

Strata: Glenelg Region
The rock types met with in the bores are as follows:-

(a) Bores in the Parishes of Casterton, Carapook, Muntham, Coleraine, Hilgay, Merino, Sandford, Bahgallah and Mocamboro struck Jurassic sandstones and shales beneath a cover of Cainozoic clays, sands and gravels, which ranged in thickness from 14 - 82 feet.

(b) Bores in the Parishes of Dartmoor and Glenelg struck two main series:

(i) limestones, marls and clays (Janjukian) overlying

(ii) ligneous sands and clays (Anglesean)

(c) Bores in the Parishes of Portland, Heywood and Yulecart penetrated soil, sand and clay before entering Tertiary limestone and marls.

Strata: South Australia region

(a) Some bores in the Counties of Cardwell and Mac-Donnell reached Pre-Cambrian bedrock.

(b) Bore in the County of Robe passed through the polyzoal limestone series, the lignitiferous series and bottomed in the Jurassic.

(c) Bores in the County of Grey struck two main series as for (b) above - limestones and marls overlying lignitic sands and clays.

Whenever possible, lithological sub-divisions have been made of the various rock types encountered in the bores listed in Table 2.

South Australia

(1) The Coorong, County of Cardwell

Seven boreholes have been drilled near Alfred Flat in the Coorong District in search of oil. Four of these reached Pre-Cambrian bedrock at depths between 190 and 587 feet, after passing through Tertiary polyzoal limestones, glauconitic foraminiferal marl and lignitic sands and clays. One went to 924 feet before striking the Pre-Cambrian, but had met Permo-Carboniferous tillite at 503 feet.

A summary of these bores is shown below:-

Bore B.M.R. No.	Bore T.D.	Depth to Surface of Pre-Cambrian	Remarks
201	922	565 feet	Pre-Cambrian marble
202	931	924 "	503-924 feet. Tillite
203	650	190 "	Pre-Cambrian Phyllite
204	656	-	Abandoned in Tertiary
205	701	-	
206	606	581 feet	Pre-Cambrian slate
207	450	400 "	Pre-Cambrian schist

Samples collected from Bore B.M.R. No.207 were examined by Commonwealth Palaeontologist, who reported as follows:-

0 - 36	feet	Sub-Recent to Pleistocene
36 - 200	"	Upper Pliocene (Werrikooian)
200 - 234	"	Polyzoal limestone (Middle Miocene)
234 - 244	"	Glauconitic foraminiferal marl
244 - 400	"	Lignitic sands and clays - lignitiferous series
400 - 450	"	Pre-Cambrian bedrock.

It appears from the records of these bores, that bedrock, almost certainly of Pre-Cambrian age, lies at no great depth beneath the Tertiary and Recent sediments, in the Coorong district.

(2) County of Buckingham

One bore was drilled in the Hundred of Stirling and five in the Hundred of Tatiara, all being water bores. Stratigraphic and lithologic information of these bores is somewhat limited. Five of the bores bottomed in Tertiary limestone or calcareous sandstone, whilst the sixth known as the Bordertown Bore bottomed in Pre-Cambrian bedrock, consisting of coarse quartz-mica schist and mica schist. The bedrock was entered somewhere between 567 and 601 feet. As in the case of the Coorong bores, sediments of Jurassic age were not encountered in any of the bores. Tertiary beds were found to be overlying Pre-Cambrian rocks in the one bore which pierced the complete section of Tertiary sediments.

A Summary of the boreholes is as follows:-

Bore B.M.R. NO.	Hundred	Bore T.D.	Remarks
208	Stirling	269 ft.	Bottomed in calcareous sand
209	Tatiara	180 "	Bottomed in coralline limestone
210	Tatiara	156 "	" "
211	Tatiara	130 "	Bottomed in calcareous sandstone
212	Tatiara	148 "	" "
213	Tatiara	601 "	Bottomed in Pre-Cambrian bedrock

(3) Kingston, County of Mac-Donnell

A group of five bores has been drilled around Kingston, some 50 miles down the coast from Alfred Flat, in the search of oil. Records of these bores showed that here also, the Pre-Tertiary land surface lay at shallow depth. Jurassic rocks were not encountered in any of the bores.

A Summary of the boreholes is as follows:-

Bore B.M.R. No.	Bore T.D.	Depth to Surface of Pre-Cambrian	Remarks
214	1,365	281 feet	Pre-Cambrian slate
215	1,170	no adequate records	
216	2,660	484 feet	Pre-Cambrian limestone and quartzite
217	204	-	Bottomed in Tertiary
218	466	402 feet	Pre-Cambrian slate

In Bore B.M.R. No.214, normal Tertiary sediments, comprising polyzoal limestone with flints, and the usual underlying lignitic clays and sands, were penetrated to a depth of 281 ft. At this depth, the drill entered thin bedded slate of Pre-Cambrian age, and remained in rocks of this character to the bottom at 1.665 feet.

In Bore B.M.R. No.216, after passing through Recent and normal Tertiary sediments, at 484 feet from the surface, the bore entered steeply inclined beds of grey limestone with bands of quartzite and veinlets of calcite and quartz containing disseminated pyrite, almost certainly of Pre-Cambrian age. Boring was continued in the rocks of this type until a T.D. of 2,660 feet was reached. From bore records it appears that the lignitiferous series was entered at 300 feet and continued to 484 feet.

Samples collected from Bore B.M.R. No.217, have been examined and reported on as follows:-

0 - 48 feet	Recent to Pleistocene, and certainly not older than Upper Pliocene
48 - 204 "	Upper Pliocene (Werrikooian)

This bore was abandoned on account of the large flow of artesian water, estimated to be 36,000 gallons per hour, struck at 187 feet.

Samples collected from Bore B.M.R. No.218, have been examined and reported on as follows:-

0 - 16 feet	Recent to Pleistocene
16 - 103 "	Upper Pliocene (Werrikooian)
103 - 402 "	Middle Miocene

A break in the series is reported at 103 feet. Slate bedrock was penetrated at 402 feet.

(4) County of Robe

One deep bore was drilled in search of oil, and two shallow holes were waterbores.

(a) Robe Bore; Bore B.M.R. No.219.

In 1915, a borehole, which ultimately attained a depth of 4,504 feet, was started by S.A. Oilwells Company at a site on the Woakwine Range, some 7.3/4 miles by road from Robe. (Section 714, Hundred of Waterhouse). The Woakwine Range is a consolidated, calcareous dune ridge of Pleistocene age and the bore site was at an elevation of 127.5 feet above sea level. Boring was carried out with a percussion drill which penetrated a thin superficial crust of travertine and then shell sand to a depth of 145 feet. Two feet of shelly limestone followed and at 147 feet the bore entered the typical polyzoal limestone which continued to 510 feet. Then followed nearly 1,000 feet of interbedded sands, clays and gravels. Some of the clays were green while others were grey, brown and black. Sharks' teeth and corals were found in sands occurring between 635 and 645 feet. Several pyrite layers, up to 1/2 in. thickness, were passed through, and carbonized wood, like charcoal, was obtained from shale between 1,000 and 1,002 feet. The last actual sand of this series occurred at 1,475 feet, and was bedded between greenish-grey to bluish-grey shales. Possibly the Jurassic coal measures were entered at this depth. The beds penetrated in the rest of the borehole were mostly greenish-grey shales and fine argillaceous sandstones with some seams of bituminous coal and traces of carbonaceous matter throughout. Definite seams of coaly matter were reported at 2,830 feet; 2,840 feet; 2,845 - 2,855 feet; 3,100 feet; 3,141 - 3,167 feet; 3,200 feet; 3,305 feet; 3,473 feet; (a 3 ft. seam) but not below 3,642 feet. This latter series was assigned, partly on the ground of lithological analogy with other bores and outcrops, and partly on account of the character of the included coal, to the Jurassic. The series is evidently an extension of the rocks of Jurassic age, which outcrop in the Casterton area, but are concealed beneath the Tertiary and Younger rocks in the South Australian territory. No strata of marine origin were found when once the Jurassic rocks were entered.

(b) Bore B.M.R. No.220

This bore was drilled to a depth of 186 feet, at a site in Section 242, Hundred of Comaum, south of Naracoorte, for the purpose of draining Rocky Castle Swamp. The bore bottomed in fine sand of Tertiary age.

0 - 20	feet	Surface Sands
20 - 165	"	Polyzoal limestone
165 - 186	"	Clay and sands of the lignitiferous series

(c) Bore B.M.R. No.221

The bore known as Government Bore No.1, was drilled for water at a site in the Hundred of Naracoorte, to a depth of 488 feet. The bore bottomed in black lignitic clay.

(5) <u>County of Grey</u>

Ten boreholes have been drilled in search of oil, and a further six bores, drilled for water, have been selected for discussion.

(a) Mount Mc Intyre; Bore B.M.R. No.222

Boring was carried out on the northern slope of Mount McIntyre, Section 9, Hundred of Riddoch, 50 miles S 60 E from Robe. The boring was carried out with a rotary drill, by the Adelaide Oil Exploration Company, and reached a total depth of 1,045 feet. The bore bottomed in Tertiary sand, below the base of the polyzoal limestone. Several dykes or sills of basalt were penetrated. The bore was sunk with the object of ascertaining whether there had been any accumulation of oil as a result of the possible effect of basaltic instrusions on Tertiary or Jurassic coal measures; either by destructive distillation of the organic matter in these measures, or by the disruption of the strata by igneous forces, with the creation of physical conditions favorable to the concentration of any oil that might be disseminated through the sedimentary rocks.

Mount McIntyre is capped with vesicular basalt, but there is no volcanic vent in the immediate vicinity of the borehole. The basalt occurs within a broad zone that extends for many miles in a direction parallel with the continental margin in this region, and within which there have been many centres of eruption including Mount Schank and Mount Gambier. This zone of basaltic volcanic action reaches Mount Muirhead, near Millicent, at its northwestern limit.

(b) Mount Burr; Bore B.M.R. No.223

A bore was drilled for water at Mount Burr, in the Hundred of Riddoch. T.D. 425 feet.

The Tertiary stages met in the bore were:-

(i) Werrikooian (Upper Pliocene) 19 - 148 feet

(ii) Janjukian (Middle Miocene) 148 - 425 feet

The Werrikooian is represented in the bore by fossiliferous dune limestone, tuffaceous and calcareous sandstone and a gritty limestone. Similar limestones are recorded from bores at Kingston and in some of the Dartmoor bores.

The Janjukian rocks met in the bore consist of hard white limestone and flints, passing downwards into chalky bryozoal limestone. Similar beds are also found in bores and outcrops in southeastern South Australia and southwestern Victoria. Apparently a disconformity exists at 148 feet, where the beds underlying the Upper Pliocene are Middle Miocene in age.

(c) Bore B.M.R. No.224

A water bore was drilled in Section 555, Hundred of Mount Muirhead and known as Cheese Factory No.1 bore. T.D. 575 feet. The bore passed through Tertiary limestone, with hard flinty bands, and bottomed in Tertiary limestone with layers of marl.

(d) Tantanoola; Bore B.M.R. No.225

On completion of the Robe bore, the drill was moved to a site within Section 195, Hundred of Hindmarsh, on the up-throw side of the Tartwaup Fault, close to the fault scarp known as the Up and Down Rocks, and 3.1/2 miles to the east-southeast of Tantanoola, or about 5½miles southeast of Robe. The bore was drilled by S.A. Oil Wells Company and reached a depth of 1,532 feet.

0 - 392 feet Polyzoal limestone (Janjukian)

392 - 1,532 " Sands and clays assigned to the lignitiferous series.

The upper part of this latter series contained evidence of marine intercalations. Sharks' teeth were obtained from red sand at 460 feet and corals were reported when a depth of 573 feet was reached. At 581 feet, the drill entered a series of interbedded dark clays and sands or gravels, some of the clay being lignitic in character. This series continued to the bottom of the hole. The bore was sunk as a test for accumulation of oil against a fault plane.

(e) Hundred of Young

Three shallow boreholes, situated within the Hundred of Young, were drilled in an attempt to drain the Dismal Swamp by letting the surface water enter the beds of permeable sand. All bores bottomed in clays and sands assigned to the lignitiferous series.

A Summary of these bores is as follows:-

Section	Bore B.M.R. No.	Bore T.D.	Polyzoal Series	Lignitic Series
164	226	157	16 - 109 feet	109 - 157 feet
217	227	141	4 - 50 "	50 - 141 "
F	228	133		

These bores proved a thin cover of the Janjukian polyzoal series, overlying the usual lignitic sands and clays.

(f) Hundred of Blanche

(i) Bore B.M.R. No.229

In section 150, in the northwest corner of the Hundred, a bore was sunk by Producers' Oil Wells at a site on the southern (Downthrow) side of the Tartwaup Fault. T.D. 1,220 feet.

0 - 210 feet Polyzoal limestone

210 - 1,220 " Clays, sands and gravels assinged to the lignitiferous series.

(ii) Associated Bore; Bore B.M.R. No.230

In 1923, a borehole was drilled by Associated Oil Corporation at a site within Section 301, 8 miles to the northwest of Mount Gambier. T.D. 2,110 feet.

0 - 34 feet Recent to Pleistocene

34 - 142 " Dolomitized plyzoal limestone

142 - Bottom Clays and sands containing marine intercalations with sharks' teeth and corals- assigned to the lignitiferous series.

At 381 feet, there was a silt with corals and sharks' teeth. At 2,095 feet, the drill passed through a bed of fine carbonaceous sandstone with a molluscan and foraminiferal fauna.

(iii) Knight's Dome

A detailed geological survey carried out by R.A. Keble, of the Hundred of Blanche, was held to have established the presence of a closed anticlinal structure of somewhat irregular form, in the Tertiary Janjukian formation, near the Burnda Siding on the Mount Gambier - Beachport Railway, about 5 miles to the west-northwest of Mount Gambier. This structure became known as Knight's Dome or Burnda Anticline. The "dome" is a long narrow anticline, the axis of which is nearly North - South. The eastern limb is much steeper than the western. There is definite indication of closure of the structure at its southern end, and strong presumption of a similar closure towards the north as well, though in the latter direction, the Tertiary rocks are hidden beneath later accumulations of drift sand.

It has been reported of Knight's Dome that:-

(a) There is still no unquestionable proof of the existence of oil in the southeastern region at any place, either disseminated through the Tertiary or Jurassic rocks or concentrated in any part of these rocks.

(b) The rocks of the Tertiary system in this region are not unfavourable for the existence of commerical accumulations of oil, as regards either age or lithological character.

(c) Structural conditions due to folding and faulting and suitable for the concentration of oil, have been proved to exist at the surface, and it appears inevitable that the deeper-beds of the Tertiary and the underlying Jurassic rocks are involved. The inclination of the axial plane of the older folding is not decipherable at the surface.

A magnetic survey of the area on behalf of Oil Search Ltd. subsequently made by J.M. Rayner, showed that no igneous intrusion was present at depth to account for the attitude of the surface rocks.

A further detailed geological survey of the Hundred of Blanche and the Burnda Anticline was carried out by E.A. Rudd. He showed that the structure is closed to the south, but flattens into imperceptible dips to the north. Outside this area and within the Hundred, the strataare apparently flat.

A shallow pilot hole, Bore B.M.R. No.231, and known as Knight's Dome No.1, was drilled in Section 170, to 311 feet.

0 - 17	feet	Subrecent surface accumulations of sand
17 - 80	"	Polyzoal limestones and hard marls and basal calcareous grit (Janjukian)
80 - 311	"	Lignitic sands and clays (Anglesean)

The oil bearing horizon of the Lakes Entrance area is not represented in this bore.

Later, a bore known as Knight's Dome No.2; Bore B.M.R. No.232, was drilled in the crestal region of Knight's Dome, close to the Mount Gambier - Beachport railway. Total depth reached 2,013 feet. The bore proved 1,838 feet of beds of the lignitiferous series.

0 -	175 feet	Polyzoal limestone series
175 - 2,013	"	Lignitic sands and clays, carrying at intervals marine intercalations with fossils.

Testing operations carried out on sands between 1,825 - 1,869 feet and between 1,996 feet and bottom produced negative results.

(iv) Springs Bore; Bore B.M.R. No.233

A water bore drilled in Section 150 to a depth of 1,160 feet. The bore bottomed in dark grey lignitic and fossiliferous sandy clay, of the Anglesean Stage.

(g) Hundred of Caroline

Mapping by H.S. Lyne in 1923 was considered to have established the presence of a closed anticline in the extreme south-eastern corner of South Australia, near the Glenelg River.

Four bores have been drilled inthe Hundred of Caroline.

Section	Bore B.M.R. No.	Bore T.D.	Depth to base of Polyzoal limestone
337	234	1,226	533 feet
336	235	1,824	506 "
543	236	1,561	527 "
598	237	839	

Bores B.M.R. Nos. 234 - 236 were located close together and all three failed to penetrate the whole thickness of the series of alternating lignitic clays and sands. Bore B.M.R. No.237 was located 2.1/2 miles further south and was reported to have been abandoned in yellowish-brown sand underlying the polyzoal limestone and marl. Bores B.M.R. Nos. 234 - 236 bottomed in the lignitiferous series underlying the Janjukian polyzoal limestone.

It has been suggested that the results of these bores showing little variation in the elevation of the base of the polyzoal series, prove that no anticlinal structure exists. The argument is not conclusive because in the distance of 2.1/2 miles between bore B.M.R. No.237 and the group of bores B.M.R. Nos. 234 - 236, there is room for a synclinal axis. In the area mapped by Lyne, it would be very difficult to get conclusive evidence of closure, but evidence obtained from the cliff sections of the Glenelg River shows that gentle folding does exist.

Victoria

Glenelg Region

(1) The Goroke - Edenhope District

Little is known of the subsurface geology of this very important section of the Murray River Artesian Basin; that part of the County of Lowan situated south of the Little Desert and west of the Grampians. In general, the area which rises to approximately 600 feet above sea level, is fairly flat with low ridges separating valleys containing lakes and swamps.

The Goroke - Edenhope District is bounded on two sides by bed rock. Granite, Schists, diabases and acid lavas are exposed in the valley of the Glenelg River and in the lower sections of some of its short tributaries from the north, while Grampian sandstones and isolated patches of Ordovician sediments outcrop on the east. Most of the area is covered by Cainozoic sediments. Marine limestones, probably of Middle Miocene age, appear at the surface at isolated localities between Apsley and Pine Hills Station, about 6 miles northwest of Harrow, and are no doubt continuous with the limestones outcropping over the border in South Australia and in the County of Follett. The limestones northwest of Harrow rest directly on granite, which itself outcrops further south, without the usually intervening lignitic silts and sands. The basalt flows (Newer Basalt) overlie the marine limestones near the confluence of Kadnook Creek, and the Glenelg River.

No complete geological examination has yet been made of any bores drilled in the Goroke - Edenhope District. A large part of the district is covered by Recent to Pleistocene silts, sands and fine gravels, the latter occurring at the base and becoming gradually finer upwards. Fossiliferous Werrikooian (Upper Pliocene) and Kalimnan (Lower Pliocene) deposits are known to exist, but there is little information as to their thickness or nature. Over a large section of this district, it seems as though the polyzoal limestones of Middle Miocene age, have been replaced, due to lateral variation, by clays and marls. Hence, throughout the district, the facies is noted to vary from limestones to marls and clays, each containing fossil assemblages which differ somewhat from each other but which indicate the same age. The fossiliferous clays are underlain by sediments described as black clays, which are thought to be the equivalent of the lignitic clays and sands found elsewhere beneath the bryozoan limestone.

Of the numerous bores drilled for water in the district, five have been selected for reference.

Parish	Bore B.M.R. No.	Bore T.D.	Remarks
Nurcoung	49	364	Bottomed in Tertiary limestone
Mortat	50	700	Abandoned in clays; no limestone
Charam	51	140	At 140 feet, mixture of Kalimnan and Werrikooian fossils
Harrow	52	70	Bottomed in granite
Connewirrecoo	53	63	Limestone, sands and gravels.

Bore B.M.R. No.50 was put down on Pleasant Banks Station, about 4 miles west of Goroke. Some 600 feet of Tertiary Clays were penetrated in this bore; limestone, however is struck at less than 100 feet from the surface, only about 1 mile to the west, thus showing the lateral variation that is possible. The deep bores put down at Naracoorte and Bordertown proved that the lignitic series contained coarse sand and gravel beds. No similar coarse beds have as yet been struck in the Goroke - Edenhope District. Bore B.M.R. No.51, sunk at Maryvale, about 12 miles south of Goroke, bottomed in a marine bed containing fossils of Werrikooian and Kalimnan age. A number of shallow bores were drilled on Pine Hills Station, in the Parish of Harrow. Those to the south of the homestead bottomed in granite at very shallow depth.

In that portion of the County of Borung included in the area under review, very few bores have been sunk. Two bores put down in the vicinity of Green Lake cut fossiliferous lignitic beds at approximately 150 feet beneath the surface.

(2) County of Dundas

Numerous bores have been drilled by the Mines Department in the Parishes of Carapook, Coleraine, Hilgay and Muntham. The bores passed through a shallow cover of Cainozoic clays, sands and gravels, and then entered the Jurassic sandstones and shales containing in places, thin seams of bituminous coal, at depths ranging between 10 - 38 feet. All the bores in these parishes bottomed in Jurassic sediments.

A brief summary of the bores is shown below:

Parish	Bore B.M.R. No.	Mines Dept. Name	Bore T.D.	Top of Jurassic
Carapook	83	Carapook 1	410	34 feet
"	84	" 2	419	16 "
Muntham	85	Muntham 1	593	38 "
"	86	" 2	784	37 "
"	87	" 3	694	28 "
"	88	" 4	470	32 "
Coleraine	89	Coleraine 1	538	
"	90	" 2	764	
"	91	" 3	735	23 "

Parish	Bore B.M.R. No.	Mines Dept. Name	Bore T.D.	Top of Jurassic
Hilgay	92	Hilgay 1	528	12 feet
"	93	" 2	60	23 "
"	94	" 3	54	24 "
"	95	" 4	43	19 "
"	96	" 5	65	12 "
"	97	" 6	116	17 "
"	98	" 7	70	14 "
"	99	" 8	70	29 "
"	100	" 9	177	10 "
"	101	" 10	145	12 "
"	102	" 11	96	19 "
"	103	" 12	154	

(3) County of Follett

(a) In the eastern part of the Hundred of Comaum, County of Robe, there is an elevated area that extends eastwards into the Parish of Langkoop, County of Follett, which appears to be either a structural dome or horst. Its relationship to the lower country has not been determined by a series of boreholes, although one borehole, Bore B.M.R. No.153, was drilled near Comaum at a site near Lake Cooie, a mile to the east of the South Australian border and 36 miles to the northwest of Casterton. T.D. 1,171 feet.

0 - 132 feet	Superficial deposits
132 - 509 "	Polyzoal limestone series, glauconitic in the upper part
509 - bottom	Jurassic coal measures

The site is on somewhat elevated ground, which, it was thought, might correspond with doming in the underlying rocks. The striking at 509 feet of the Jurassic surface, which lies at 1,348 feet below sea level in the Robe bore and much lower still beneath Portland, shows that there is a considerable rise towards this part of the country, both from the west and from the southeast. Such a rise towards the plunge of the old rocks from the Victorian Highlands is normal, however, and there is no evidence for local doming.

(b) Two bores have been sunk in each of the Parishes of Casterton and Bahgallah. After passing through shallow deposits of superficial clays and sands, the bores penetrated and bottomed in the Jurassic coal measures. The bores are summarised as below:-

Parish	Bore B.M.R. No.	Mines Dept. Name.	Bore T.D.	Top of Jurassic
Casterton	81	Casterton 1.	794	36 feet
"	82	" 2	750	25 "
Bahgallah	112	Bahgallah 1	268	82 "
"	113	" 2	290	72 "

(c) Scout boring around Parish of Dartmoor

A number of Government scout bores were put down around Dartmoor, and their locations are shown upon the detailed geological parish plan published for that district. These bores in general, proved the presence of the lignitiferous series at shallow depth beneath the polyzoal limestone. None of these bores penetrated the full section of the lignitiferous series. In Dartmoor 1 bore, pyrites has been recorded in most of the samples between 494 feet and bottom at 564 feet. Fossils were scarce in the samples from this bore, but some minute foraminifera were present.

A Summary of the Dartmoor bores drilled by the Mines Department is given below.

Bore B.M.R. No.	Mines Dept. Name	Bore T.D.	Limestones, Marls & Clays	Lignitic Sands & Clays
115	Dartmoor 1	564	0 - 24 feet	24 - 564 feet
116	" 2	102	0 - 102 "	
117	" 3	115	0 - 115 "	
118	" 4	224	0 - 98 "	98 - 224 "
119	" 5	48	0 - 30 "	30 - 48 "
120	" 6	182	0 - 176 "	176 - 182 "
121	" 7	100	0 - 26 "	26 - 100 "
122	" 8	96	0 - 77 "	77 - 96 "
123	" 9	34	0 - 32 "	32 - 34 "
124	" 10	103	0 - 96 "	96 - 103 "
125	" 11	88	0 - 84 "	84 - 88 "
126	" 12	71	0 - 68 "	68 - 71 "
127	" 13	102	0 - 27 "	27 - 102 "
128	" 14	215	0 - 211 "	211 - 215 "
129	" 15	151	0 - 151 "	
130	" 16	118	0 - 116 "	116 - 118 "
131	" 17	44	0 - 39 "	39 - 44 "

Bore B.M.R. No.	Mines Dept. Name	Bore T.D.	Limestones, Marls & Clays	Lignitic Sands & Clays
132	Dartmoor 18	74	0 - 71 feet	71 - 74 feet
133	" 19	72	0 - 66 "	66 - 72 "
134	" 20	187	0 - 187 "	
135	" 21	158	0 - 158 "	
136	" 22	107	0 - 105 "	105 - 107 "
137	" 23	76	0 - 73 "	73 - 76 "
138	" 24	65	0 - 57 "	57 - 65 "

(d) At a site in the southwest corner of Crown Allotment 3-A, in the Parish of Malanganee, the Mersey Valley Oil Company drilled a bore known as Mumbannar No.1 (Bore B.M.R. No.154), to a depth of 1,100 feet. The bore passed through 800 feet of the polyzoal limestone series and thence through 300 feet of beds of the lignitiferous series.

(e) In 1926, the Point Addis Company drilled a bore,(Bore B.M.R. No.155), at a site in the Parish of Palpara, about 2 miles east of the South Australian border, to a depth of 1,170 feet.

0 - 754 feet	Polyzoal limestone
754 - 1,170 "	Lignitic sands and clays

(f) Nelson Bore; Bore B.M.R. No.139

The Government bore known as Nelson 1 drilled at Nelson township, in the Parish of Glenelg, reached a depth of 7,305 feet. When drilling operations ceased, the bore had proved 7,299 feet of Tertiary sediments in the southwestern corner of Victoria, and palaeontological evidence has shown that the bore was still in sediments of Middle Miocene age.

Three stages of the Middle Miocene are represented in the bore:-

(i) Balcombian Stage (basal portion) at 108 feet

(ii) Janjukian Stage, represented by 864 feet of fossiliferous limestones, marls, and calcareous grits, from 112 feet down to 976 feet. Beds belonging to this stage include calcareous and fossiliferous grits; white to grey bryozoal marls; bryzoal limestones; dolomitic limestones and flints.

Three lithological and palaeontological zones have been recognised:-

(1) The topmost zone extends from 112 - 625 feet and contains friable, bryozoal marls and limestones, and hard, pink dolomitic limestones and grey flints. The most important lithological types in this zone are the dolomitic limestones and flints. Similar rock types are well known in surface deposits in southeastern South Australia. The topmost

bed of the Janjukian in the bore is regarded as being at 112 feet.

(2) The middle zone which occurs from 635 - 812 feet is comprised of grey to white bryzoal marls.

(3) The lowest zone extends from 815 - 976 feet and is represented by calcareous sandstones and fossiliferous grits. From 939 - 976 feet these grits and sandstones contain abundant brown glauconitic grains. These glauconitic sandstones, though different in hand specimen from those at the base of the Janjukian in bores in the Lakes Entrance area, are apparently of similar composition and are referable to the same stratigraphic horizon.

(iii) Anglesean Stage, represented by 6,316 feet of carbonaceous sandstones and shales from 989 feet to bottom at 7,305 feet. This is the greatest thickness yet proved for the stage in the area. Prior to the drilling of the Nelson bore, the greatest recorded thickness was in Knight's Dome No.2 bore where 1,933 feet were proved before drilling operations ceased. The lithology of these beds varies from dark to light grey micaceous and carbonaceous sandstones with foraminifera to moderately hard dark grey shales and sandstones with plant remains. The greatest depth at which there is evidence of marine conditions is 5,304 feet, where the typical Anglesean foram Cyclamina is present. An assemblage of foraminifera, bryozoa, fragments of mollusca, ostracoda and fish teeth is present in an unconsolidated sandstone at 1,924 - 1,943 feet. A similar assemblage was met with in Knight's Dome No.2 Bore, at the depth of 1,980 - 1,995 feet in similar unconsolidated sandstone, and at 2,110 feet in the Associated Oil Company's bore.

(4) County of Normanby

(a) A number of bores have been drilled by the Mines Department in the Parishes of Merino, Mocamboro and Sandford. As in the case of the Carapook, Coleraine, Hilgay, Muntham, Casterton and Bahgallah bores, these bores entered the Jurassic coal measures at shallow depth. The bores are summarised below:-

Parish	Bore B.M.R. No.	Mines Dept. Name	Bore T.D.	Top of Jurassic
Merino	104	Merino 1	695	15 feet
"	105	" 2	921	12 "
"	106	" 3	1,005	46 "
"	107	" 4	360	25 "
"	108	" 5	691	30 "
"	109	" 6	653	14 "
"	110	" 7	766	39 "
Sandford	111	Sandford 1	826	Started in Jurassic
Mocamboro	114	Mocamboro 1	644	20 feet

(b) Portland Bores

The records of the two bores drilled at Portland in the eighteen nineties, apparently for coal, are rather unsatisfactory. The bores which were numbered Portland 1 (Bore B.M.R. No.140) and Portland 2 (Bore B.M.R. No.141), reached total depths of 2,265 feet and 1,505 feet respectively. The succession throughout was mainly calcareous. Much glauconite was recorded between 2,040 feet and 2,065 feet. These records suggest an important thickening of the marine rocks above the lignitiferous series rather than a passage into marine calcareous facies of the time equivalent of the lignitiferous series itself. The basal glauconitic rocks would be correlated with the oil-bearing glauconitic rocks of Lakes Entrance.

One mile north of Portland township, Thos. Borthwick and Sons put down a water bore (Bore B.M.R. No.142) to a depth of 622 feet. In this bore, basalt was encountered from 0 - 106 feet, and limestone followed, to bottom.

(c) Hamilton Bores

Several bores put down for water at or near Hamilton, proved the extension of marine Tertiary rocks beneath the Newer Basalt. The bores proved the presence of not less than 250 feet of the polyzoal series. One bore was sunk by the Mines Department in the Parish of Yulecart (Bore B.M.R. No.151) to a depth of 252 feet. Limestone and calcareous beds were encountered from 4 feet to bottom.

(d) Heywood Bores

Eight shallow bores were drilled by the Mines Department in the Parish of Heywood. These bores penetrated shallow depths of soil, sand and clay, before entering the Tertiary polyzoal limestones and marls.

Bore B.M.R. No.	Mines Dept. Name	Bore T.D.	Soil, sand & clay.	Limestone
143	Heywood 1	101	0 - 36 feet	36 - 101 feet
144	" 2	104	0 - 12 "	12 - 104 "
145	" 3	104	0 - 31 "	31 - 104 "
146	" 4	101	0 - 9 "	9 - 101 "
147	" 5	101	0 - 56 "	56 - 101 "
148	" 6	100	0 - 60 "	60 - 100 "
149	" 7	100	0 - 18 "	18 - 100 "
150	" 8	100	0 - 36 "	36 - 100 "

(e) Tahara Bore; Bore B.M.R. No.152

This bore penetrated the Jurassic coal measures at 7 feet and remained in this series to bottom at 422 feet. The beds consisted of carbonaceous sandstones and mudstones and a few thin calcareous sandstone bands.

Wimmera Region

The Murray River Artesian Basin includes the major portion of the Wimmera Region. Bedrock is exposed along the southeastern and eastern margins of the region.

Bores drilled in this region which is included in the County of Lowan, show a notable thinness of Pliocene clays overlying the Miocene limestones. The maximum thickness of these clays is 45 feet, but they are less than 10 feet thick in most bores. No clays are found at this horizon in bores near the South Australian border (Bores B.M.R. Nos. 1 & 3) nor in the adjacent bores in South Australia.

Of the numerous bores drilled for water in the region, 13 have been selected and are listed below:-

Bore B.M.R. No.	Name	Bore T.D.	Series Kalimnan	Series Polyzoal	Series Lignitic	Bedrock
1	E. Miles	250		131-250		
2	Kaniva	201		156-201		
3	"	416	216-225	225-416		
4	Boyeo 1	1160		201-712	712-1115	1115-1160
5	Lawloit	311	281-290	290-311		
6	No.2 Air Nav.	990	252-275	275-613	613-990	
7	Nhill	1175	159-171	171-464	464-1079	1079-1175
8	Moll's	465		225-465		
9	C. Creek	375	305-330	330-375		
10	Netherby	2200		248-660	660-978	978-2200
11	Lorquon	290		240-290		
12	R. Oldfield	373		343-373		
13	Dimboola 1	379		80-338	338-370	370-379

(a) Netherby Bore; Bore B.M.R. No.10

248 - 660	feet	Polyzoal limestone
660 - 978	"	Lignitic sands and clays
978 - 2175	"	Sandstones, shales and conglomerates Upper-Palaeozoic (?)
2175 - 2200	"	Porphyry

(b) Dimboola No.1 Bore; Bore B.M.R. No.13

This bore is rather different from the general Murray River Artesian Basin bores and reveals:-

(i) a great thickness, 206 feet, of fossiliferous marine clays underlying a thin band of gritty limestone

(ii) the ligneous series represented by only 26 feet of silts and sands

(iii) bed rock at a depth of 370 feet beneath the surface, possibly indicating a buried ridge.

(iv) bed rock indentified as diabase, probably of Cambrian age.

It is possible that this bore is located over a buried ridge, which extends northwards into the County of Weeah. An anticline formed in the Tertiary sediments deposited over this buried ridge may be the dividing line between freely flowing water to the west and partially stagnant water of much higher salinity to the east. According to Miss Crespin, the following stratigraphical horizons are present in the Dimboola No.1 bore:-

Recent to Pleistocene	3 - 61 feet
Upper Pliocene	61 - 80 "
Mixed (?) Middle Pliocene and Middle Miocene	80 - 111 "
Middle Miocene (Balcombian Stage)	111 - 370 "
Palaeozoic	370 - 379 "

It will be seen that both Upper and Middle Pliocene sediments occur, while beds of Kalimnan age (Lower Pliocene) are absent. The dark sands and silts underlying the Balcombian clays also contain typical Balcombian fossils and are therefore, not referable to the Anglesean, with which the lignitiferous series is correlated elsewhere in the Murray River Artesian Basin. It is possible that in the marginal areas sediments being deposited differed from those being laid down in the deeper central portion of the basin.

Page nos. 33-35 have been omitted from the record. Page 36 correctly follows page 32.

CONCLUSIONS

It may be assumed that any oil accumulations which may exist in the area, are likely to be associated with one of the following sets of conditions:

(a) a closed anticline in which the oil-bearing horizon is under adequate cover.

(b) a fault developed before the tilting of the basement was far advanced, along which the oil-bearing horizon is truncated up-dip, against impervious rocks.

(c) a shore line belt in which the oil-bearing horizon resting directly on the basement is overlapped and so sealed up-dip by impervious rocks.

(d) a "buried hill". A slight local irregularity in the surface of the basement, or an area of whose rate of subsidence was somewhat slower than that of the surrounding parts of the basement, upon which sediments have built up, could provide the required conditions. Such an irregularity might not be reflected at all at the surface, or in the upper parts of the Tertiary sequence, since such a structure would be more pronounced at depth than near the surface, and might therefore, escape detection altogether in scout bores drilled to the Miocene palaeontological markers.

(e) an igneous intrusion, against which the oil-bearing horizon is tilted.

It can be stated that little hope remains that condition (a) is present in the area. It is improbable that an important closed structure in the Tertiary rocks would have failed altogether to reveal itself in the topography or surface geology. A program of geophysical surveying and scout boring may reveal the presence of a concealed structure.

Surface geological surveys show little reason to expect the presence of faults suitable to act as structural traps. The possibility that faults affecting the basement and the lower parts of the Tertiary rock sequence and possibly Jurassic, are present, but have been concealed by later deposits, remains open, and could be tested by geophysical surveys.

It is possible that oil-bearing horizons may exist in both the Polyzoal and Lignitiferous Series of the Tertiary, since this latter series contains marine intercalations throughout. It can be stated that reservoir sands and cover rocks in the lignitiferous series are numerous, and offer suitable conditions for the accumulation of oil. Marine sediments have not been found in the Jurassic rocks, however, so these fresh-water sands cannot be regarded as a source of oil.

It is thought that if oil exists in the region then some positive sign of it would have been found in some of the numerous bores, both for water and oil, so far drilled in the Murray River Artesian Basin. In the wide region to the north of the Naracoorte - Kingston railway, numerous bores have been drilled in search of water, but no sign of petroleum has been recorded from the boreholes. South of the railway, there has been considerable boring for oil, but no positive signs have so far been reported. Neither has a sign of oil been reported at any one of the volcanic vents, nor along the course of the Tartwaup Fault. It has been shown, too, that throughout the area generally, there is a copious and active movement of underground water towards the sea. Such conditions do not favour the ready accumulation of oil, although structural traps which are not known at the present time, may exist.

Most of the area has now been covered by an aerial photographic survey; this should be followed by a detailed geological survey of the area not covered to date, where such a survey is thought to be warranted, and finally, a geophysical survey of the region chosen from the results of the previous surveys is recommended, with a view to -

(a) obtaining the general configuration of basement

(b) determining the depth of basement

(c) delineating any reflected structures suggested by (a) above

(d) delineating other domed or anticlinal structures.

SUMMARY AND RECOMMENDATIONS

No detailed geological reports of the area have been published. Area under review is regarded as the southern extension of the Murray River Artesian Basin. The Basin is generally made up of Recent and Tertiary formations resting on a basement of Pre-Cambrian or Jurassic rocks.

The region is generally surfaced by a thin veneer of sand, travertine and dune limestone of Recent to Pleistocene age. Pliocene fossiliferous limestones occur in places and these are underlain by polyzoal limestones and flint beds of Middle Miocene age. (Balcombian and Janjukian Stages). The polyzoal limestones attain a thickness of more than 2,100 feet at Portland.

The Janjukian limestones are underlain by a series of lignitic sands, clays and gravels, containing marine intercalations and assigned to the Anglesean stage of Lower Middle Miocene age. These beds attained a known thickness of 6,316 feet in the Nelson Bore.

Greenish-grey shales and fine grained argillaceous sandstones containing thin seams of bituminous coal, outcrop in the Casterton- Coleraine district, and are met in several bores as far west as the Robe bore. The series is of fluvio-lacustrine origin, and is of Jurassic age.

Tillite, of Permo-Carbonfierous age, has been recorded at 503 feet, in a bore drilled in the Coorong district.

Ordovician sandstones, shales, slates and mudstones outcrop along the Glenelg River in the Parish of Dergholm.

Cambrian granites also outcrop along the Glenelg River in the same Parish.

Pre-Cambrian granites, sandstones and quartzites outcrop as inliers in the area east of the Coorong and also in the Upper Glenelg valley.

At Alfred Flat, in the Coorong district, bores showed Recent and Tertiary sediments overlying Pre-Cambrian bedrock at shallow depth.

In the Kingston area, Pre-Cambrian slates were penetrated at shallow depths beneath Tertiary sediments.

Near Robe, a bore proved 1,475 feet of Tertiary sediments overlying the Jurassic coal measures.

A bore at Knight's Dome proved 175 feet of the polyzoal limestone series, and 1,838 feet of the lignitiferous series.

Bores in the parishes of Casterton, Carapook, Muntham, Coleraine, Hilgay, Merino, Sandford, Bahgallah and Mocamboro struck Jurassic sandstones beneath a thin cover of Cainozoic clays, sands and gravels.

Bores in the Parishes of Dartmoor and Glenelg struck the two main Tertiary series, Janjukian limestones and Anglesean lignitic clays and sands.

Bores in the Parishes of Portland, Heywood and Yulecart penetrated soil, sand and clay, before entering Tertiary limestones and marls.

In the southern part of the area, the Tertiary formations are almost universally horizontal. Geological surveys for structures have been further hampered by the surface accumulations covering the Tertiary formations.

Most of the area has now been covered by an aerial photographic survey; it is recommended that this be followed by a more detailed geological survey of the area not covered to date, where such a survey is thought to be warranted, and finally, to assist in the interpretation of subsurface structural conditions, a geophysical survey of the area has been recommended:

(i) a regional gravity survey

(ii) a seismic survey of the localities where the gravity survey showed anomalies

In connection with the seismic survey, it is further recommended that:

(i) use be made of the open bore hole at Nelson

(ii) one profile be run from a bedrock inlier in the Coorong District to the Kingston area

(iii) the profile be continued south to Robe

(iv) a detailed survey be carried out of the area bordered on the north by a line running through Robe to Casterton; on the east by a line through Casterton to Portland; and on the south and west, by the coastline.

(B.H. Stinear).

Melbourne

1st. December, 1948.

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SOUTH AUSTRALIAN BORES

TABLE 1.

B.M.R. No.	County	Hundred	Location	Name or Owner	Year	T.D.
201	Cardwell	Messent	Salt Creek	Alfred Flat Bore	1892	922
202	"		Salt Creek, 3 miles N.N.W. of No.201	Salt Creek Bore	1922	931
203	"	Santo	Section B. No.1) Near the	Hd. Santo No.1	1924	650
204	"	"	Section B. No.2) Coorong and	Hd. Santo No.2	1924	656
205	"	"	Section B. No.3) S. of Salt Creek	Hd. Santo No.3	1924	701
206	"		Salt Creek, No.1	Salt Creek No.1	1932	606
207	"		Salt Creek, No.2	Salt Creek No.2	1933	450
208	Buckingham	Stirling	3 miles on Bearing 056 from Keith	Emu Flat Bore		269
209	"	Tatiara	S.E. of Wolseley on Victorian Border	Allen Bore		180
210	"	"	5 miles S.W. of Wolseley	Butler Bore		156
211	"	"	4 miles N.W. of Wolseley	Easther Bore		130
212	"	"	Wolseley	Grosser Bore		148
213	"	"	Bordertown	Bordertown Bore		601
214	Mac-Donnell	Murrabinna	Section 10B Near Blackford	Blackford Bore		1,365
215	"	Lacepede	Section 42 Near Railway	Southern Ocean Oil		1,170
216	"	"	Section 507 1 mile S. of Kingston	Southern Ocean Oil	1925	2,660
217	"	"	Section 446 N.W. corner of Section	Enterprise Oil		204
218	"	"	Section 442 NE S.E. portion of Section	Enterprise Oil		466

B.M.R. No.	County	Hundred	Location	Name or Owner	Year	T.D.
219	Robe	Waterhouse	Section 714	Robe Bore	1915	4,504
220	"	Comaum	Section 242 S. of Naracoorte	S.E. Drainage Works	1911	186
221	"	Naracoorte	Naracoorte	Govt. Bore No.1		488
222	Grey	Riddoch	Section 9 N. slope of Mt. McIntyre	Mt. McIntyre Bore		1,045
223	"	"	Mount Burr	Mt. Burr Bore		425
224	"	Mount Muirhead	Section 555	Cheese Factory No.1		575
225	"	Hindmarsh	Sec. 195. 3½ miles E.S.E. of Tantanoola	Tantanoola Bore		1,532
226	"	Young	Section 164	Dismal Swamp No.3		157
227	"	"	Section 217	Dismal Swamp No.2		141
228	"	"	Section Block F	Dismal Swamp Bore		133
229	"	Blanche	Section 150	Producers' Oil		1220
230	"	"	Section 301	Associated Bore	1923	2,110
231	"	"	Section 170	Knight's Dome No.1	1931	311
232	"	"	Section 170	Knight's Dome No.2		2,013
233	"	"	Section 150	Springs Bore		1,160
234	"	Caroline	Section 337	S.A. Oil Wells		1,226
235	"	"	Section 336	S.A. Oil Wells		1,824
236	"	"	Section 543	S.A. Oil Wells		1,561
237	"	"	Section 598	S.A. Oil Wells		839

SOUTH AUSTRALIAN BORES

TABLE 2.

B.M.R. No.	Hundred	Location	R.L. Surface	T. D.	Recent - Tertiary	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Jurassic	Pre-Cambrian Bed-Rock.
201	Messent	Salt Creek	20	922	0 - 365				365 - 922
202		Salt Creek	20	931	0 - 503				924 - 931
203	Santo	Sec. B. No.1	5	650	0 - 190				190 - 650
204	"	Sec. B. No.2	5	656	0 - 656				
205	"	Sec. B. No.3	5	701	0 - 701				
206		Salt Creek	20	606	0 - 581				581 - 606
207		Salt Creek	25	450	0 - 400	200 - 244	244 - 400		400 - 450
208	Stirling	N.E. of Keith	100	269	0 - 269				
209	Tatiara	S.E. of Wolseley	375	180	0 - 180				
210	"	S.W. of Wolseley	360	156	0 - 156				
211	"	N.W. of Wolseley	320	130	0 - 130				
212	"	Wolseley	363	148	0 - 148				
213	"	Bordertown	268	601	Bedrock entered between 567 - 601 feet				
214	Murrabinna	Section 10 B.	80	1,365	0 - 281				281 - 1365
215	Lacepede	Section 42	35	1,170					
216	"	Section 507	20	2,660	0 - 484		300 - 484		484 - 2660
217	"	Section 446 N.	25	204	0 - 204				
218	"	Section 442 N.E.	35	466	0 - 402		103 - 402		402 - 466

B.M.R. No.	Hundred	Location	R.L. Surface	T. D.	Recent - Tertiary	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Jurassic	Pre-Cambrian Bed-Rock.
219	Waterhouse	Section 714	127	4,504	0 - 1475	147 - 510	510 - 1475	1475 - 4504	
220	Comaum	Section 242	194	186	0 - 186	20 - 165	165 - 186		
221	Naracoorte	Naracoorte	190	488	0 - 488				
222	Riddoch	Section 9	300	1,045	0 - 1045				
223	"	Mount Burr	300	425	0 - 425	148 - 425			
224	Mt. Muirhead	Section 555	64	575	0 - 575				
225	Hindmarsh	Section 195	95	1,532	0 - 1532	0 - 392	392 - 1532		
226	Young	Section 164	244	157	0 - 157	16 - 109	109 - 157		
227	"	Section 217	240	141	0 - 141	4 - 50	50 - 141		
228	"	Section F	242	133	0 - 133				
229	Blanche	Section 150	130	1,220	0 - 1220	0 - 210	210 - 1220		
230	"	Section 301	135	2,110	0 - 2110	34 - 142	142 - 2110		
231	"	Section 170	140	311	0 - 311	17 - 80	80 - 311		
232	"	Section 170	140	2,013	0 - 2013	0 - 175	175 - 2013		
233	"	Section 150	130	1,160	0 - 1160				
234	Caroline	Section 337	100	1,226	0 - 1226	0 - 533	533 - 1226		
235	"	Section 336	100	1,824	0 - 1824	0 - 506	506 - 1824		
236	"	Section 543	100	1,561	0 - 1561	0 - 527	527 - 1561		
237	"	Section 598	15	839	0 - 839				

SOUTH AUSTRALIAN BORES

TABLE 3.

Name or Owner	B.M.R. No.	Name of Company	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore
Alfred Flat Bore	201	Salt Creek Pet. Coy.	36° 09' 30"	139° 42' 50"	922	G.S.S.A. Bulletin 22. p. 17
Allen Bore	209	James Allen	36° 25' 00"	140° 58' 00"	180	G.S.S.A. Bulletin 23. p. 247
Associated Bore	230	Associated Oil Corp.	37° 47' 10"	140° 38' 20"	2,110	G.S.S.A. Bulletin 22, p. 21
Blackford Bore	214	Amalgamated Oil Wells	36° 48' 00"	140° 01' 10"	1,365	G.S.S.A. Bulletin 22. p. 18
Bordertown Bore	213		36° 18' 30"	140° 46' 40"	601	G.S.S.A. Bulletin 23. p. 247
Butler Bore	210	Butler H.W.	36° 24' 50"	140° 50' 00"	156	G.S.S.A. Bulletin 23. p. 247
Cheese Factory No.1	224		37° 37' 20"	140° 22' 50"	575	G.S.S.A. Bulletin 23. p. 257
Dismal Swamp Bore	228		37° 38' 30"	140° 42' 40"	133	G.S.S.A. Bulletin 23. p. 258
Dismal Swamp No.2	227		37° 37' 50"	140° 41' 00"	141	G.S.S.A. Bulletin 23. p. 258
Dismal Swamp No.3	226		37° 39' 10"	140° 44' 50"	157	G.S.S.A. Bulletin 23. p. 258
Easther Bore	211	Easther A.H.	36° 19' 50"	140° 51' 30"	130	G.S.S.A. Bulletin 23. p. 247
Emu Flat Bore	208		36° 04' 50"	140° 23' 30"	269	G.S.S.A. Bulletin 23. p. 246
Enterprise Oil	217	Enterprise Oil Coy.	36° 51' 10"	139° 54' 30"	204	G.S.S.A. Bulletin 22. p. 19
Enterprise Oil	218	Enterprise Oil Coy.	36° 50' 00"	139° 56' 30"	466	G.S.S.A. Bulletin 22. p. 19
Govt. Bore No.1	221		36° 57' 20"	140° 43' 20"	488	G.S.S.A. Bulletin 23. p. 261
Grosser Bore	212	Grosser, A.E.J.	36° 22' 10"	140° 54' 30"	148	G.S.S.A. Bulletin 23. p. 247
Hd. Santo No.1	203	Coorong Oil Coy.	36° 09' 30"	139° 36' 10"	650	G.S.S.A. Bulletin 22. p. 17
Hd. Santo No.2	204	Coorong Oil Coy.	36° 09' 10"	139° 38' 00"	656	G.S.S.A. Bulletin 22. p. 17

Name or Owner	B.M.R. No.	Name of Company	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore
Ad. Santo No.3	205	Coorong Oil Coy.	36° 10' 00"	139° 38' 30"	701	G.S.S.A. Bulletin 22. p. 17
Knight's Dome No.1	231	Knight's Dome Ltd.	37° 49' 10"	140° 40' 00"	311	Oil Search Ltd. Report
Knight's Dome No.2	232	Oil Search Ltd.	37° 49' 10"	140° 40' 00"	2,013	G.S.S.A. Bulletin 22. p. 22
Mount Burr Bore	223		37° 33' 00"	140° 27' 30"	425	B.M.R. Report No. 1945/75
Mount McIntyre Bore	222	Ad. Oil Exploration Coy.	37° 34' 10"	140° 32' 50"	1,045	G.S.S.A. Bulletin 22. p. 21
Producers' Oil	229	Producers' Oil Wells	37° 46'10"	140° 36' 50"	1,220	G.S.S.A. Bulletin 22. p. 23
Robe Bore	219	S.A. Oil Wells Coy.	37° 12' 10"	139° 52' 40"	4,504	G.S.S.A. Bulletin 22. p. 19
Salt Creek Bore	202	Coorong Oil Coy.	36° 07' 10"	139° 41' 50"	931	G.S.S.A. Bulletin 22. p. 17
Salt Creek No.1	206	Enterprise Oil Coy.	36° 10' 30"	139° 42' 50"	606	G.S.S.A. Bulletin 22. p. 17
Salt Creek No.2	207	Enterprise Oil Coy.	36° 11' 40"	139° 48' 50"	450	G.S.S.A. Bulletin 22. p. 17
S.A. Oil Wells	234	S.A. Oil Wells Coy.	38° 00' 30"	140° 57' 00"	1,226	G.S.S.A. Bulletin 22. p. 20
S.A. Oil Wells	235	S.A. Oil Wells Coy.	38° 00' 40"	140° 57' 00"	1,824	G.S.S.A. Bulletin 22. p. 20
S.A. Oil Wells	236	S.A. Oil Wells Coy.	38° 00' 40"	140° 57' 10"	1,561	G.S.S.A. Bulletin 22. p. 20
S.A. Oil Wells	237	S.A. Oil Wells Coy.	38° 03' 00"	140° 57' 00"	839	G.S.S.A. Bulletin 22. p. 20
S.E. Drainage Works	220		37° 17' 50"	140° 51' 30"	186	G.S.S.A. Bulletin 23. p. 261
Southern Ocean Oil	215	Southern Ocean Oil Coy.	36° 52' 40"	139° 55' 10"	1,170	G.S.S.A. Bulletin 22. p. 18
Southern Ocean Oil	216	Southern Ocean Oil Coy.	36° 51' 10"	139° 50' 40"	2,660	G.S.S.A. Bulletin 22. p. 18
Springs Bore	233		37° 46' 20"	140° 37' 10"	1,160	G.S.S.A. Bulletin 23. p. 256
Tantanoola Bore	225	S.A. Oil Wells Coy.	37° 44' 10"	140° 31' 10"	1,532	G.S.S.A. Bulletin 22. p. 20

GLENELG BORES

TABLE 1.

B.M.R. No.	Regional No.	County	Parish	Location	Name or Owner	Year	T. D.
49	GL- 6- 2	Lowan	Nurcoung	Crown Allotment 14A.	Kowree Shire		364
50	GL- 4- 5	"	Mortat	" " 39.	Pleasant Banks		700
51	GL-11- 1	"	Charam	Maryvale, 12 miles South of Goroke.	Maryvale	1909	140
52	GL-16- 3	"	Harrow	S. of Pine Hills Station Homestead.	Pine Hills Station		70
53	GL-17- 3	"	Connewirrecoo	Crown Allotment 10.	Edgar. O.	1939	63
81	GL-19- 1	Follett	Casterton	S.W. Corner of Racecourse Reserve.	Casterton 1	1925	794
82		"	"	N.W. " " " "	" 2	1930	750
83	GL-20- 2	Dundas	Carapook	S.W. Corner of C.A. 6A. Sec. 10.	Carapook 1	1925	410
84	GL-20- 1	"	"	S.E. " " " 10 " 3.	" 2	1925	419
85	GL-21- 2	"	Muntham	N.E. " " " 16.	Muntham 1	1924	593
86	- -	"	"	S.W. " " " 8.	" 2	1924	784
87	GL-21- 3	"	"	S.E. " " " 8. Sec. 17.	" 3	1925	694
88	GL-21- 1	"	"	Wennicott Ck. Crossing on Casterton Rd.	" 4	1925	470
89		"	Coleraine	1/4 mile South of Sec. 43.	Coleraine 1	1882	538
90		"	"	1 mile East of Sec. 47.	" 2	1882	764
91	GL-22- 1	"	"	S.E. Corner of C.A. 34A.	" 3	1926	735

B.M.R. No.	Regional No.	County	Parish	Location	Name or Owner	Year	T. D.
92		Dundas	Hilgay	N.E. Corner of C.A. 10B. Sec. 5.	Hilgay 1	1926	528
93		"	"	N.E. " " " 9A. " 5.	" 2	1926	60
94		"	"	S.E. " " " 9B. " 5.	" 3	1926	54
95		"	"	N.E. " " " 9B. " 5.	" 4	1926	43
96		"	"	2 chains S.W. of No.95.	" 5	1926	65
97		"	"	5 " S.W. " No.96.	" 6	1926	116
98		"	"	3.1/2 chains N.W. of No.97.	" 7	1926	70
99		"	"	10 " S. " No.94.	" 8	1926	70
100		"	"	9.1/4 " S.W. " No.97.	" 9	1926	177
101	GL-23- 1	"	"	10 " N.W. " No.98.	" 10	1926	145
102		"	"	8 " N. " No.101	" 11	1926	96
103		"	"	N.W. Corner of C.A. 9B. Sec. 5.	" 12	1926	154
104		Normanby	Merino	S.E. " " " 6.	Merino 1	1897	695
105		"	"	1/2 mile north of No.104.	" 2	1897	921
106	GL-24- 2	"	"	S.W. Corner of C.A. 12A. Sec. A.	" 3	1924	1,005
107	GL-24- 3	"	"	S.E. " " " 3 " 3.	" 4	1924	360

B.M.R. No.	Regional No.	County	Parish	Location	Name or Owner	Year	T. D.
108	GL-24- 4	Normanby	Merino	S.E. Corner of C.A. 30C.	Merino 5	1925	691
109	GL-24- 5	"	"	S.E. " " " 12.	" 6	1925	653
110	GL-24- 1	"	"	S.W. " " " 31B. Sec. A.	" 7	1925	766
111	GL-25- 1	"	Sandford	N.E. " " " 4 " 5.	Sandford 1	1925	826
112	GL-26- 1	Follett	Bahgallah	S.E. " " " 13.	Bahgallah 1	1916	268
113	GL-26- 2	"	"	1 mile S.W. of No.112.	" 2	1916	290
114	GL-27- 1	Normanby	Mocamboro	N.W. Corner of C.A. 2A2. Sec. 11.	Mocamboro 1	1926	644
115	GL-28- 7	Follett	Dartmoor	N.W. " " " 24A.	Dartmoor 1	1928	564
116	GL-28-16	"	"	Dartmoor Township.	" 2	1928	102
117	GL-28-18	"	"	" "	" 3	1928	115
118	GL-28-17	"	"	" "	" 4	1928	224
119	GL-28-13	"	"	" "	" 5	1928	48
120		"	"	1/4 mile east of No.118.	" 6	1928	182
121	GL-28-14	"	"	19 chains north of No.118.	" 7	1929	100
122	GL-28-15	"	"	9.5 " " " No.118.	" 8	1929	96
123	GL-28-11	"	"	S.W. Corner of C.A. 38E.	" 9	1929	34

B.M.R. No.	Regional No.	County	Parish	Location	Name or Owner	Year	T. D.
124	GL-28- 9	Follett	Dartmoor	S.W. Corner of C.A. 39A.	Dartmoor 10	1929	103
125	GL-28- 8	"	"	1/4 mile North of No.124.	" 11	1929	88
126	GL-28-10	"	"	1/4 mile East of No.124.	" 12	1929	71
127	GL-28-12	"	"	S.W. Corner of C.A. 32A.	" 13	1929	102
128		"	"	N.E. " " State School Allotment.	" 14	1930	215
129		"	"	S.W. " " C.A. 27B.	" 15	1930	151
130	GL-28- 6	"	"	S.W. " " " 27B.	" 16	1930	118
131		"	"	S.W. " " " 27B.	" 17	1930	44
132		"	"	S.W. " " " 27B.	" 18	1930	74
133	GL-28- 4	"	"	N. " " " 16.	" 19	1930	72
134	GL-28- 1	"	"	S.W. " " " 6C.	" 20	1930	187
135		"	"	W. " " " 6B.	" 21	1930	158
136	GL-28- 2	"	"	N.E. " " " 13B.	" 22	1930	107
137	GL-28- 3	"	"	S.E. " " " 13B.	" 23	1930	76
138	GL-28- 5	"	"	N. " " " 15A.	" 24	1930	65
139	GL-29- 1	"	Glenelg	Nelson Township	Nelson 1	1946	7,305

B.M.R. No.	Regional No.	County	Parish	Location	Name or Owner	Year	T.D.
140	GL - 30 - 10	Normanby	Portland	Portland Township	Portland 1	1894	2,265
141		"	"	Near Surrey River	" 2 (Bolwara)	1894(1895)	1,505
142	GL- 30- 1	"	"	1 mile N.of Portland Township	Thos.Borthwicks		622
143	GL- 31- 1	"	Heywood	S.W.Corner of C.A. 14A. Sec. 1	Heywood 1.	1926	101
144	GL- 31- 2	"	"	S.E. " " 27 " 1	" 2	1926	104
145	GL- 31- 3	"	"	11.1/2 chains W. of No.144	" 3	1926	104
146	GL- 31- 4	"	"	S.E. Corner of C.A. 27A. Sec.1	" 4	1926	101
147	GL- 31- 5	"	"	S.E. " " 18 " 1	" 5	1926	101
148	GL- 31- 6	"	"	N.E. " 19 " 1	" 6	1927	100
149	GL- 31- 7	"	"	S.W. " 19 " 1	" 7	1927	100
150	GL-31- 8	"	"	S.E. " 8 " 1	" 8	1927	100
151	GL - 32- 1	"	Yulecart	S.of bridge over Muddy Creek	Yulecart 1	1927	252
152		"	Tahara	N. Corner of C.A. 1 Sec.18	Tahara 1	1925	422
153		Follett	Langkopp	N.E. " " 50	Comaum		1,171
154		"	Malanganee	S.W. " " 3A	Mumbarnar 1		1,100
155		"	Palpara	North of Nelson near Glenelg River	Palpara 1	1926	1,170

GLENELG BORES

TABLE 2.

B.M.R. No.	Parish	Location	Name Or Owner	R.L. Surface	T.D.	Recent - Tertiary	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Jurassic
49	Nurcoung	C.A. 14A	Kowree Shire	560	364	0 - 364			
50	Mortat	C.A. 39	Pleasant Banks	490	700	0 - 700			
51	Charam	Maryvale	Maryvale	580	140	0 - 140			
52	Harrow	Pine Hills	Pine Hills	575	70	Bottomed in granite.			
53	Connewirrecoo	C.A. 10	Edgar O.	480	63	0 - 63			
81	Casterton	Racecourse Res.	Casterton 1	150	794	0 - 36			36 - 794
82	"	" "	" 2	155	750	0 - 25			25 - 750
83	Carapook	C.A. 6A Sec.10	Carapook 1	200	410	0 - 34			34 - 410
84	"	C.A. 10 Sec. 3	" 2	500	419	0 - 16			16 - 419
85	Muntham	C.A. 16	Muntham 1	310	593	0 - 38			38 - 593
86	"	C.A. 8	" 2	230	784	0 - 37			37 - 784
87	"	C.A. 8 Sec.17	" 3	240	694	0 - 28			28 - 694
88	"	Wennicott Ck.	" 4	375	470	0 - 32			32 - 470
89	Coleraine	¼M.W. of Sec.43	Coleraine 1	310	538				
90	"	1M.E. " " 47	" 2	400	764				
91	"	C.A. 34A	" 3	400	735	0 - 23			23 - 735

B.M.R. No.	Parish	Location	Name or Owner		R.L. Surface	T.D.	Recent - Tertiary	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Jurassic
92	Hilgay	C.A. 10B. Sec.5	Hilgay	1	410	528	0 - 12			12 - 528
93	"	C.A. 9A. " 5	"	2	410	60	0 - 23			23 - 60
94	"	C.A. 9B. " 5	"	3	410	54	0 - 24			24 - 54
95	"	C.A. 9B. " 5	"	4	400	43	0 - 19			19 - 43
96	"	S.W. of No.95	"	5	400	65	0 - 12			12 - 65
97	"	S.W. of No.96	"	6	400	116	0 - 17			17 - 116
98	"	N.W. of No.97	"	7	410	70	0 - 14			14 - 70
99	"	S. of No.94	"	8	410	70	0 - 29			29 - 70
100	"	S.W. of No.97	"	9	400	177	0 - 10			10 - 177
101	"	N.W. of No.98	"	10	400	145	0 - 12			12 - 145
102	"	N. of No.101	"	11	390	96	0 - 19			19 - 96
103	"	C.A. 9B. Sec.5	"	12	390	154				
104	Merino	C.A. 6	Merino	1	285	695	0 - 15			15 - 695
105	"	½M. N. of No.104	"	2	270	921	0 - 12			12 - 921
106	"	C.A. 12A Sec.A.	"	3	350	1,005	0 - 46			46 - 1005
107	"	C.A. 3 Sec.3	"	4	235	360	0 - 25			25 - 360

B.M.R. No.	Parish	Location	Name or Owner		R.L. Surface	T. D.	Recent - Tertiary	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Jurassic
108	Merino	C.A. 30C	Merino	5	385	691	0 - 30			30 - 691
109	"	C.A. 12	"	6	355	653	0 - 14			14 - 653
110	"	C.A. 31B Sec.A	"	7	300	766	0 - 39			39 - 766
111	Sandford	C.A. 4 Sec.5	Sandford	1	165	826	Started in Jurassic.			
112	Bahgallah	C.A. 13	Bahgallah	1	298	268	0 - 82			82 - 268
113	"	1M.SW. of No.112	"	2	242	290	0 - 72			72 - 290
114	Mocamboro	C.A. 2A2 Sec.11	Mocamboro	1	410	644	0 - 20			20 - 644
115	Dartmoor	C.A. 24A	Dartmoor	1	124	564	0 - 564	0 - 24	24 - 564	
116	"	Dartmoor	"	2	99	102	0 - 102	0 - 102		
117	"	"	"	3	30	115	0 - 115	0 - 115		
118	"	"	"	4	99	224	0 - 224	0 - 98	98 - 224	
119	"	"	"	5	106	48	0 - 48	0 - 30	30 - 48	
120	"	¼M. E. of No.118	"	6	112	182	0 - 182	0 - 176	176 - 182	
121	"	¼M. N. of No.118	"	7	117	100	0 - 100	0 - 26	26 - 100	
122	"	⅛M. N. of No.118	"	8	108	96	0 - 96	0 - 77	77 - 96	
123	"	C.A. 38E	"	9	100	34	0 - 34	0 - 32	32 - 34	

B.M.R. No.	Parish	Location	Name or Owner	R.L. Surface	T. D.	Recent - Tertiary	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Jurassic
124	Dartmoor	C.A. 39A	Dartmoor 10	148	103	0 - 103	0 - 96	96 - 103	
125	"	½M. N. of No.124	" 11	150	88	0 - 88	0 - 84	84 - 88	
126	"	½M. E. of No.124	" 12	150	71	0 - 71	0 - 68	68 - 71	
127	"	C.A. 32A	" 13	120	102	0 - 102	0 - 27	27 - 102	
128	"	State School All.	" 14	130	215	0 - 215	0 - 211	211 - 215	
129	"	C.A. 27B	" 15	149	151	0 - 151	0 - 151		
130	"	C.A. 27B	" 16	149	118	0 - 118	0 - 116	116 - 118	
131	"	C.A. 27B	" 17	148	44	0 - 44	0 - 39	39 - 44	
132	"	C.A. 27B	" 18	135	74	0 - 74	0 - 71	71 - 74	
133	"	C.A. 16	" 19	163	72	0 - 72	0 - 66	66 - 72	
134	"	C.A. 6C	" 20	160	187	0 - 187	0 - 187		
135	"	C.A. 6B	" 21	162	158	0 - 158	0 - 158		
136	"	C.A. 13B	" 22	160	107	0 - 107	0 - 105	105 - 107	
137	"	C.A. 13B	" 23	170	76	0 - 76	0 - 73	73 - 76	
138	"	C.A. 15A	" 24	155	65	0 - 65	0 - 57	57 - 65	
139	Glenelg	Nelson	Nelson 1	10	7,305	0 - 7305	112 - 976	989 - 7305	

B.M.R. No.	Parish	Location	Name or Owner	R.L. Surface	T.D.	Recent - Tertiary	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Jurassic
140	Portland	Portland	Portland 1	20	2,265	0 - 2265	0 - 2265		
141	"	Near Surry R.	" 2	75	1,505	0 - 1505	0 - 1505		
142	"	1M. N. of No.140	Borthwick's	80	622	0 - 622	106 - 622		
143	Heywood	C.A. 14A Sec.1.	Heywood 1	100	101	0 - 101	36 - 101		
144	"	C.A. 27 Sec.1.	" 2	100	104	0 - 104	12 - 104		
145	"	⅛M.W. of No.144	" 3	100	104	0 - 104	31 - 104		
146	"	C.A. 27A Sec.1	" 4	110	101	0 - 101	9 - 101		
147	"	C.A.18 Sec.1	" 5	120	101	0 - 101	56 - 101		
148	"	C.A.19 Sec.1	" 6	130	100	0 - 100	60 - 100		
149	"	C.A.19 Sec.1	" 7	140	100	0 - 100	18 - 100		
150	"	C.A. 8 Sec.1	" 8	150	100	0 - 100	36 - 100		
151	Yulecart	Muddy Creek	Yulecart 1	535	252	0 - 252	4 - 252		
152	Tahara	C.A. 1 Sec.18	Tahara 1	390	422	0 - 7			7 - 422
153	Langkoop	C.A.50	Comaum	300	1,171	0 - 509	132 - 509		509 - 1171
154	Malanganee	C.A. 3A	Mumbannar 1	200	1,100	0 - 1100	0 - 800	800 - 1100	
155	Palpara	4½M.N.of No.139	Palpara 1	85	1,170	0 - 1170	0 - 754	754 - 1170	

GLENELG BORES

TABLE 3.

Name or Owner	B.M.R. No.	Name of Company	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore.
Bahgallah 1	112	Government Bore	37° 37' 30"	141° 18' 10"	268	Dept. Mines A.R. 1916 p. 49
Bahgallah 2	113	Government Bore	37° 37' 50"	141° 17' 10"	290	" " A.R. 1916 p. 49
Borthwick, T.	142	Thos. Borthwick & Sons	38° 19' 50"	141° 35' 30"	622	Gloe, C.S. Vol.1. 1947 p. 98
Carapook 1	83	Government Bore	37° 36' 50"	141° 33' 20"	410	Dept. Mines B.R. 1925 p. 34
Carapook 2	84	" "	37° 33' 00"	141° 31' 40"	419	" " B.R. 1925 p. 34
Casterton 1	81	" "	37° 36' 20"	141° 24' 20"	794	" " B.R. 1925 p. 34
Casterton 2	82	" "	37° 35' 50"	141° 24' 10"	750	" " B.R. 1930 p.138
Coleraine 1	89	" "	37° 36' 10"	141° 41' 40"	538	D.D. Rept. No.1. 1885 p. 35
Coleraine 2	90	" "	37° 37' 00"	141° 40' 50"	764	" " " 1885 p. 35
Coleraine 3	91	" "	37° 37' 10"	141° 40' 40"	735	Dept. Mines B.R. 1926 p. 50
Comaum	153	Point Addis Company	37° 13' 10"	140° 59' 10"	1,171	G.S.S.A. Bulletin 22 p. 21
Dartmoor 1	115	Government Bore	37° 53' 53"	141° 14' 11"	564	Dept. Mines B.R. 1928 p. 91
Dartmoor 2	116	" "	37° 55' 00"	141° 16' 34"	102	" " B.R. 1928 p. 91
Dartmoor 3	117	" "	37° 55' 29"	141° 16' 49"	115	" " B.R. 1928 p. 91
Dartmoor 4	118	" "	37° 55' 00"	141° 16' 33"	224	" " B.R. 1928 p. 92
Dartmoor 5	119	" "	37° 55' 00"	141° 16' 18"	48	" " B.R. 1928 p. 92

Name or Owner	B.M.R. No.	Name of Company	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore.
Dartmoor 6	120	Government Bore	37° 55' 02"	141° 16' 52"	182	Dept. Mines B.R. 1928 p. 92
Dartmoor 7	121	" "	37° 54' 47"	141° 16' 35"	100	" " B.R. 1929 p.119
Dartmoor 8	122	" "	37° 54' 52"	141° 16' 35"	96	" " B.R. 1929 p.119
Dartmoor 9	123	" "	37° 55' 30"	141° 14' 04"	34	" " B.R. 1929 p.119
Dartmoor 10	124	" "	37° 55' 43"	141° 12' 22"	103	" " B.R. 1929 p.119
Dartmoor 11	125	" "	37° 55' 30"	141° 12' 25"	88	" " B.R. 1929 p.119
Dartmoor 12	126	" "	37° 55' 45"	141° 12' 38"	71	" " B.R. 1929 p.119
Dartmoor 13	127	" "	37° 54' 37"	141° 16' 18"	102	" " B.R. 1929 p.120
Dartmoor 14	128	" "	37° 55' 23"	141° 16' 35"	215	" " B.R. 1930 p.138
Dartmoor 15	129	" "	37° 53' 45"	141° 11' 35"	151	" " B.R. 1930 p.138
Dartmoor 16	130	" "	37° 53' 48"	141° 11' 53"	118	" " B.R. 1930 p.138
Dartmoor 17	131	" "	37° 53' 52"	141° 12' 17"	44	" " B.R. 1930 p.139
Dartmoor 18	132	" "	37° 54' 07"	141° 12' 15"	74	" " B.R. 1930 p.139
Dartmoor 19	133	" "	37° 51' 37"	141° 14' 48"	72	" " B.R. 1930 p.139
Dartmoor 20	134	" "	37° 50' 37"	141° 13' 46"	187	" " B.R. 1930 p.139
Dartmoor 21	135	" "	37° 51' 06"	141° 14' 17"	158	" " B.R. 1930 p.139

Name or Owner	B.M.R. No.	Name of Company	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore.
Dartmoor 22	136	Government Bore	37° 51' 22"	141° 14' 33"	107	Dept. Mines B.R. 1930 p. 139
Dartmoor 23	137	" "	37° 51' 34"	141° 14' 13"	76	" " B.R. 1930 p. 140
Dartmoor 24	138	" "	37° 51' 30"	141° 15' 00"	65	" " B.R. 1930 p. 140
Edgar, O.	53	Private Bore	37° 09' 40"	141° 29' 00"	63	Gloe, C.S. Vol.1. 1947 p. 98
Heywood 1	143	Government Bore	38° 07' 00"	141° 35' 00"	101	Dept. Mines B.R. 1926 p. 53
Heywood 2	144	" "	38° 07' 10"	141° 35' 10"	104	" " B.R. 1926 p. 53
Heywood 3	145	" "	38° 07' 10"	141° 35' 00"	104	" " B.R. 1926 p. 53
Heywood 4	146	" "	38° 07' 30"	141° 35' 10"	101	" " B.R. 1926 p. 53
Heywood 5	147	" "	38° 07' 50"	141° 35' 20"	101	" " B.R. 1926 p. 54
Heywood 6	148	" "	38° 07' 50"	141° 35' 10"	100	" " B.R. 1927 p. 70
Heywood 7	149	" "	38° 08' 00"	141° 34' 40"	100	" " B.R. 1927 p. 70
Heywood 8	150	" "	38° 08' 20"	141° 34' 10"	100	" " B.R. 1927 p. 70
Hilgay 1	92	" "	37° 39' 30"	141° 42' 50"	528	" " B.R. 1926 p. 54
Hilgay 2	93	" "	37° 39' 30"	141° 42' 30"	60	" " B.R. 1926 p. 54
Hilgay 3	94	" "	37° 39' 38"	141° 42' 40"	54	" " B.R. 1926 p. 54
Hilgay 4	95	" "	37° 39' 38"	141° 42' 30"	43	" " B.R. 1926 p. 54

Name or Owner	B.M.R. No.	Name of Company	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore.
Hilgay 5	96	Government Bore	37° 39' 38"	141° 42' 30"	65	Dept. Mines B.R. 1926 p. 54
Hilgay 6	97	" "	37° 39' 40"	141° 42' 20"	116	" " B.R. 1926 p. 54
Hilgay 7	98	" "	37° 39' 38"	141° 42' 20"	70	" " B.R. 1926 p. 55
Hilgay 8	99	" "	37° 39' 45"	141° 42' 40"	70	" " B.R. 1926 p. 55
Hilgay 9	100	" "	37° 39' 45"	141° 42' 10"	177	" " B.R. 1926 p. 55
Hilgay 10	101	" "	37° 39' 30"	141° 42' 10"	145	" " B.R. 1926 p. 55
Hilgay 11	102	" "	37° 39' 20"	141° 42' 10"	96	" " B.R. 1926 p. 55
Hilgay 12	103	" "	37° 39' 30"	141° 41' 50"	154	" " B.R. 1926 p. 55
Kowree Shire	49	Private Bore	36° 41' 00"	141° 38' 40"	364	Gloe, C.S. Vol.1 1947 p. 97
Maryvale	51	" "	36° 53' 20"	141° 28' 30"	140	" " " 1947 p. 86
Merino 1	104	Government Bore	37° 44' 10"	141° 33' 10"	695	Dept. Mines B.R. 1897 p. 20
Merino 2	105	" "	37° 43' 10"	141° 32' 50"	921	" " B.R. 1897 p. 20
Merino 3	106	" "	37° 40' 40"	141° 36' 00"	1,005	" " B.R. 1924 p. 28
Merino 4	107	" "	37° 41' 50"	141° 33' 00"	360	" " B.R. 1924 p. 28
Merino 5	108	" "	37° 46' 20"	141° 32' 50"	691	" " B.R. 1925 p. 41
Merino 6	109	" "	37° 45' 10"	141° 35' 40"	653	" " B.R. 1925 p. 41

Name Or Owner	B.M.R. No.	Name of Company	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore.
Merino 7	110	Government Bore	37° 39' 10"	141° 36' 00"	766	Dept. Mines B.R. 1925 p. 41
Mocamboro 1	114	" "	37° 42' 40"	141° 27' 50"	644	" " B.R. 1926 p. 58
Mumbannar 1	154	Mersey Valley Oil Co.	37° 51' 10"	141° 02' 40"	1,100	S.A. Min. Rev. 1925 No.43 p.50
Muntham 1	85	Government Bore	37° 35' 40"	141° 38' 10"	593	Dept. Mines B.R. 1924 p. 29
Muntham 2	86	" "	37° 37' 00"	141° 35' 50"	784	" " B.R. 1924 p. 29
Muntham 3	87	" "	37° 36' 50"	141° 36' 20"	694	" " B.R. 1925 p. 42
Muntham 4	88	" "	37° 35' 00"	141° 33' 40"	470	" " B.R. 1925 p. 43
Nelson 1	139	" "	38° 03' 00"	141° 00' 30"	7,305	" " B.R. 1946 p. 26
Palpara 1	155	Point Addis Company	37° 59' 30"	140° 59' 50"	1,170	S.A. Min. Rev. 1925 No.43 p.50
Pine Hills Station	52	Private Bore	37° 06' 50"	141° 32' 50"	70	Gloe, C.S. Vol.1 1947 p. 87
Pleasant Banks	50	" "	36° 41' 50"	141° 25' 40"	700	" " " 1947 p. 86
Portland 1	140	Government Bore	38° 21' 30"	141° 36' 40"	2,265	Dept. Mines A.R. 1894 p. 60
Portland 2	141	" "	38° 13' 20"	141° 37' 30"	1,505	" " A.R. 1894 p. 60
Sandford 1	111	" "	37° 38' 00"	141° 27' 40"	826	" " B.R. 1925 p. 45
Tahara 1	152	" "	37° 43' 30"	141° 40' 00"	422	" " B.R. 1925 p. 47
Yulecart 1	151	" "	37° 44' 10"	141° 55' 30"	252	" " B.R. 1927 p. 88

WIMMERA BORES

COUNTY OF LOWAN.

TABLE 1.

B.M.R. No.	Regional No.	Parish	Location	Name or Owner	Year	T. D.
1	WI- 2- 3	Dinyarrak	Cove Pre-Purchase	Miles, E.	1946	250
2	WI- 3- 2	Leeor	Water Reserve adjoining C.A.18, Sec. 2	Kaniva Waterworks		201
3	WI- 7- 2	Kaniva	Kaniva Township	Kaniva Town Supply	1926	416
4	WI-13- 1	Tarranginnie	Water Reserve, W. of C.A.135	Boyeo 1	1888	1,160
5	WI-14- 3	Lawloit	Crown Allotment 55	Lawloit Public Bore		311
6	WI-18- 1	Balrootan	S.W. Corner of C.A.57	No.2 Air Nav. School	1941	990
7	WI-18 -3	"	Nhill Township	D Drill No.10 Bore 2	1888	1,175
8	WI-18- 6	"	1.5 miles S.E. of Nhill Township	Moll's Well	1928	465
9	WI-18- 9	"	Crown Allotment 35	Creek, C.	1914	375
10	WI-21- 3	Warraquil	3 milesW. of Netherby Township	Netherby	1888	2,200
11	WI-22- 9	Lorquon	Lorquon Township	Lorquon Bore	1936	290
12	WI-30- 3	Woraigworm	Crown Allotment 40	Oldfield, R.	1914	373
13	WI-31- 2	Watchegatcheca	Southern Boundary of C.A.38	Dimboola 1	1945	379

WIMMERA BORES.

COUNTY OF LOWAN.

TABLE 2.

B.M.R. No.	Parish	Name or Owner	R.L. Surface	T. D.	Recent - Tertiary	L. Pliocene (Kalimnan)	M. Miocene (Janjukian)	M. Miocene (Anglesean)	Pre-Tertiary Bed-Rock.
1	Dinyarrak	Miles, E.	400	250	0 - 250		131 - 250		
2	Leeor	Kaniva Waterworks	400	201	0 - 201		156 - 201		
3	Kaniva	Kaniva Town	480	416	0 - 416	216 - 225	225 - 416		
4	Tarranginnie	Boyeo 1	436	1,160	0 - 1115		210 - 712	712 - 1115	1115 - 1160
5	Lawloit	Lawloit Public	510	311	0 - 311	281 - 290	290 - 311		
6	Balrootan	No.2 Air Nav.	420	990	0 - 990	252 - 275	275 - 613	613 - 990	
7	"	D Drill No.10	423	1,175	0 - 1079	159 - 171	171 - 464	464 - 1079	1079 - 1175
8	"	Moll's Well	431	465	0 - 465		225 - 465		
9	"	Creek, C.	440	375	0 - 375	305 - 330	330 - 375		
10	Warraquil	Netherby	390	2,200	0 - 978		248 - 660	660 - 978	978 - 2200
11	Lorquon	Lorquon Bore	360	290	0 - 290		240 - 290		
12	Woraigworm	Oldfield, R.	380	373	0 - 373		343 - 373		
13	Watchegatcheca	Dimboola 1	338	379	0 - 370	61 - 80	80 - 338	338 - 370	370 - 379

WIMMERA BORES.

COUNTY OF LOWAN.

TABLE 3.

Name or Owner	B.M.R. No.	Parish	Latitude, S.	Longitude, E.	T. D.	Report Reference to Bore
Boyeo 1	4	Tarranginnie	36° 16' 30"	141° 31' 10"	1,160	Gloe, C.S. Vol.1. 1947 p. 78
Creek, C.	9	Balrootan	36° 18' 40"	141° 43' 10"	375	" " " " p. 81
D Drill No.10 Bore 2	7	"	36° 19' 20"	141° 39' 00"	1,175	" " " " p. 80
Dimboola 1	13	Watchegatcheca	36° 26' 20"	141° 55' 00"	379	" " " " p. 83
Kaniva Town Supply	3	Kaniva	36° 23' 50"	141° 14' 30"	416	" " " " p. 78
Kaniva Waterworks	2	Leeor	36° 23' 50"	141° 03' 40"	201	" " " " p. 77
Lawloit Public Bore	5	Lawloit	36° 27' 00"	141° 26' 30"	311	" " " " p. 79
Lorquon Bore	11	Lorquon	36° 09' 30"	141° 45' 20"	290	" " " " p. 82
Miles, E.	1	Dinyarrak	36° 18' 40"	141° 03' 00"	250	" " " " p. 77
Moll's Well	8	Balrootan	36° 21' 20"	141° 39' 50"	465	" " " " p. 81
Netherby Bore	10	Warraquil	36° 06' 50"	141° 35' 40"	2,200	" " " " p. 81
No.2 Air Nav. School	6	Balrootan	36° 18' 20"	141° 39' 00"	990	" " " " p. 79
Oldfield, R.	12	Woraigworm	36° 28' 00"	141° 45' 30"	373	" " " " p. 82

140°00' 140°30' 141°00' 141°30' 142°00' 142°30'

36°00' 36°30' 37°00' 37°30' 38°00' 38°30'

Lake Hindmarsh
Keith
Salt Creek
Duke's Highway
Border Town
Wolseley
Serviceton
Adelaide Western Highway
Melbourne Railway
Nhill
Kaniva
Yanac
Netherby
Jeparit
Brim
Warracknabeal
Dimboola
Murtoa
Horsham
Goroke
Natimuk
Quantong
Frances
Lacepede Bay
Kingston
Lucindale
Naracoorte
Apsley
Charam
Edenhope
Cape Jaffa
Guichen Bay
Cape Dombey
Robe
Lake Eliza
Lake St. Clair
Lake George
Penola
Beachport
Rivoli Bay
Millicent
Mt. Muirhead
Mt. McIntyre
Mt. Burr
Lake Leake
Lake Edward
Tantanoola
Lake Bonney
Mount Gambier
Princes Highway
Mt. Schank
Nelson
Discovery Bay
Cape Bridgewater
Bridgewater Bay
Cape Nelson
Portland Bay
Portland
Dergholm
Glenelg River
Harrow
Kanagulk
Englefield
Carapook
Casterton
Sandford
Merino
Coleraine
Dunkeld
Cavendish
Hamilton
Branxholme
Penshurst
Glenelg River
Crawford River
Wannon River
Wando River
Surry River
Heywood
Karoit
Port Fairy
Warrnambool
AUSTRALIA
SOUTH VICTORIA
BOUNDARY

LEGEND

RECENT TO PLIOCENE	1	Unconsolidated sand of coast and interior; consolidated sand dunes; limestones, marine and lagoonal; travertine; lateritic ironstone; flood plains and swamp deposits.	PRE-CAMBRIAN	5	Crystalline schist; sandstone; quartzite; slate.
	1/2	Thin travertine over Miocene limestone.	PLIOCENE	6	Newer Volcanic Basalt.
MIOCENE	2	Marine and freshwater sediments; limestones composed of shells; echinoderms, polyzoa etc., and containing layers and concretions of flints; calcareous and lignitic clays.	CAMBRIAN?	7	Granite; diabase.
JURASSIC	3	Felspathic sandstone and mudstone containing carbonaceous fragments.	PRE-CAMBRIAN	8	Granite; gneiss.
ORDOVICIAN?	4	Acutely folded indurated slates and sandstones.	PRE-CAMBRIAN	9	Felspar Porphyry.

Railways ----- Roads

2240 · 138 Boreholes numbered as in Report No. 1946/82.

GEOPHYSICAL SECTION. BUREAU OF MINERAL RESOURCES GEOLOGY & GEOPHYSICS.

Reference: 1/S4 1, 2, 3, 6, 7, 10, 11 Complete coverage.

Control: Photo reduction of above Royal Aust. Survey Corps 4 mile series sheets.

Survey and Detail: Based upon above maps with geological and bore information sketched in. No survey work carried out.

Reliability: Sketch only. Geological boundaries taken from U.S.S.A. Bull 4 and Victorian 16 mile geological map.

Scale: 8 miles to 1 inch (approx.)

0 2 4 8 12 16 20 24 28 32

GEOLOGICAL SKETCH MAP
S/W VICTORIA AND S/E SOUTH AUSTRALIA

G 47-1

17 Jan 1949

COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF SUPPLY AND SHIPPING.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

REPORT No. 1948/82

Petroleum Technology Series - 1.

COMPILATION OF GEOLOGICAL AND BORE-HOLE DATA FROM SOUTH-WESTERN VICTORIA AND THE CONTIGUOUS PART OF SOUTH AUSTRALIA, WITH PARTICULAR REFERENCE TO THE PORTLAND - NELSON- MT. GAMBIER AREA.

APPENDIX.

Logs of Bores - Table 4.

Melbourne.

1st December, 1948.

STATE RIVERS AND WATER SUPPLY COMMISSION, VICTORIA

THE UNDERGROUND WATER RESOURCES OF VICTORIA

Volume 1. 1947. p.97.

Parish of Nurcoung.

Bore B.M.R. No. 49.

Position: Crown Allotment 14-A.

Strata	Thickness FT.	Depth FT.
Soil and gravel	1	0 - 1
Red clay	7	1 - 8
Coloured coarse to fine grained sands	215	8 - 223
Yellow quartz gravel	19	223 - 242
Coarse sand and drift	72	242 - 314
Black clay	2	314 - 316
Limestone	48	316 - 364
Depth bored	-	- 364

STATE RIVERS AND WATER SUPPLY COMMISSION, VICTORIA.

THE UNDERGROUND WATER RESOURCES OF VICTORIA

Volume 1. 1947. p. 98.

Parish of Connewirrecoo.

Bore B.M.R. No.53

Position: Crown Allotment 10

Strata	Thickness Ft.	Depth Ft.
Soil, clay and sand	38	0 - 38
Gravel and sandy clay	8	38 - 46
Limestone	7	46 - 53
Sand and gravel	10	53 - 63
	Depth bored -	63

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1925. p.34.

Parish of Casterton

Bore No. 1

Bore B.M.R. No. 81

Position: 2 chains south from south-west corner of Racecourse Reserve

Strata	Thickness ft.	ins,	Depth Struck ft.	ins.
Sand	32	-	-	-
Sand and gravel	3	-	32	-
Clay, grey	1	-	35	-
Mudstone	15	-	36	-
Sandstone, clacareous	1	-	51	-
Mudstone	20	-	52	-
Sandstone, carbonaceous	1	-	72	-
Mudstone	20	-	73	-
Sandstone, carbonaceous	1	-	93	-
Mudstone	42	-	94	-
Sandstone, carbonaceous	2	-	136	-
Mudstone	24	-	138	-
Sandstone, carbonaceous	1	-	162	-
Mudatone, calcareous	28	-	163	-
Mudstone	391	-	191	-
Sandstone, carbonaceous	1	-	582	-
Mudatone	17	-	583	-
Sandstone	17	-	600	-
Sandstone, calcareous	23	-	617	-
Mudstone	154	-	640	-
Depth bored		-	794	-

Small flow of artesian water struck at 26 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1930. P.138

Parish of Casterton

Bore No.2.

Bore B.M.R. No. 82

Position: 0.48 chains south-east from the north-west corner of the Racecourse Reserve.

Strata	Thickness Ft.	Depth Struck Ft.
Clay, ~~blake~~ black	3	-
Clay, brown	12	3
Clay, sandy	3	15
Sand	3	18
Clay. grey	4	21
Mudstone	123	25
Sandstone, calcareous	4	148
Mudstone	19	152
Sandstone, calcareous	2	171
Sandstone, with mudstone bands,	12	173
Sandstone, calcareous	1	185
Sandstone, sandy	33	186
Sandstone, calcareous	6	219
Mudstone, with sandstone bands	193	225
Sandstone, calcareous	2	418
Mudstone	116	420
Sandstone, calcareous	1	536
Mudstone	35	537
Sandstone, calcareous	2	572
Mudstone	174	574
Sandstone, calcareous	2	748
Depth bored		750

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1925. P.34.

Parish of Carapook

Bore No.1.

Bore B.M.R. No. 83

Locality: Casterton

Position: 1 chain 62 links west, then 1 chain 28 links north from south-west corner of allotment 7-A, Parish of Muntham.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil and silt	8	-	-	
Clay, grey	16	-	8	-
Clay, sandy	6	-	24	-
Gravel	4	-	30	-
Mudstone, calcareous, with bands of sandstone	159	6	34	-
Clod		6	193	-
Mudstone, with bands of calcareous sandstone	47	-	194	-
Clod	1	-	241	-
Mudstone, with bands of calcareous sandstone	14	-	242	-
Sandstone, fine-grained	11	-	256	-
Sandstone and mudstone bands	45	-	267	-
Mudstone	98	-	312	-
Depth bored			410	-

Brackish water standing at 7 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1925. P.34.

Parish of Carapook

Bore No.2

Bore B.M.R. No. 84

Locality: Casterton

Position: 50 links south, them 1.66 chains west from junction of McPherson's Creek with western boundary of allotment 6-A.

Strata	Thickness ft.	Depth Struck ft.
Clay, black	2 -	-
Clay, brown	9	2
Gravel and sand	2	11
Clay, brown and grey	3	13
Mudstone, soft	20	16
Sandstone, calcareous	2	36
Mudstone	121	38
Sandstone, carbonaceous	2	159
Mudstone, with calcareous nodules	109	161
Sandstone, carbonaceous	42	270
Mudstone, sandy	74	312
Sandstone, hard	33	386
	Depth bored	419

Brackish water standing at 7 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1924 P.29.

Parish of Muntham

Bore No.1 (Bore B.M.R. No.85)

Locality: Coleraine

Position: 71 feet south , then 17 feet east from north-east corner of Allotment 16.

Strata	Thickness Ft.	Depth Struck Ft.
Soil	1	-
Clay, blue and brown	17	1
Clay, sandy	3	18
Silt	9	21
Clay, sandy, grey	8	30
Mudstone (Jurassic)	144	38
Sandstone	20	182
Mudstone, soft in places	102	202
Sandstone, with mudstone bands	176	304
Sandstone, very soft	8	480
Mudstone, with hard bands	69	488
Mudstone with layers of quartzite	22	557
Conglomerate	14	579
Total depth bored		593

A little fresh water struck at 538 feet; standing at 10 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1924. P.29

Parish of Muntham

Bore No.2

Bore B.M.R. No. 86.

Locality: Coleraine

Position: 48 feet north, then 12 feet west from south-west corner of allotment 8.

Strata	Thickness Ft.	Thickness ins.	Depth Struck Ft.	Depth Struck ins.
Soil	2	0	-	
Clay, dark	2	0	2	0
Clay, brown	12	0	4	0
Clay and silt	8	0	16	0
Clay, brown	11	0	24	0
Silt and sand with quartz pebbles	2	0	35	0
BLACK COAL	1	0	37	0
Mudstone, sandstone bands	34	0	38	0
Mudstone	178	0	72	0
BLACK COAL	-	6	250	0
Mudstone and sandstone bands	43	0	250	6
BLACK COAL		6	293	0
Mudstone and sandstone bands	31	0	294	0
Mudstone and carbonaceous bands	34	0	325	0
Sandstone	7	0	359	0
Mudstone and sandstone bands	14	0	366	0
Mudstone	15	0	380	0
Mudstone, carbonaceous	1	6	395	0
Mudstone and sandstone bands	79	6	396	6
BLACK COAL	1	3	476	0
Mudstone and calcareous sandstone	29	9	477	3
BLACK COAL	1	6	507	0
Mudstone and calcareous sandstone	11	6	508	6
Mudstone, carbonaceous	1	0	520	0
Sandstone	6	0	521	0
Mudstone and calcareous sandstone	51	0	527	0
Sandstone	12	0	578	0
Mudstone and sandstone bands	194	0	590	0
Depth bored	-		784	0

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1925. P.42

Parish of Muntham

Bore No.3.

Bore B.M.R. No. 87

Locality: Coleraine

Position: 1.31 chains north, then 10 links west from south-east corner of allotment 8, section 17.

Strata	Thickness Ft.	Depth Struck Ft.
Clay, black	3	-
Clay, grey	4	3 0
Clay, sandy	7	7
Silt and clay	14	14
Mudstone	114	28
Mudstone with small band of clod	178	142
Mudstone, carbonaceous	20	320
Mudstone	25	340
Clod	2	365
Mudstone and sandstone bands	19	367
Mudstone, calcareous	34	386
Mudstone and sandstone bands	26	420
Sandstone, soft	34	446
Mudstone with carbonaceous bands	87	480
Sandstone, soft	7	567
Mudstone, and sandstone, calcareous	120	574
Depth bored -		694

Brackish water standing at 19 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1925.P.43

Parish of Muntham

Bore No.4

Bore B.M.R. No. 88.

Locality: Coleraine

Position: 80 links east, then 35 links south from Wennicott Creek crossing on Casterton Road.

Strata	Thickness Ft.	Thickness ins.	Depth Struck Ft.	Depth Struck ins.
Clay, black	4	0	-	
Clay, brown	5	0	4	0
Clay, sandy	14	0	9	0
Gravel and sand	7	0	23	0
Clay, sandy	2	0	30	0
Mudstone	5	0	32	0
BLACK COAL SHALY	0	6	37	0
Mudstone	78	6	37	6
Mudstone, calcareous, and sandstone bands	43	0	116	0
Clod	-	6	159	0
Mudstone, and sandstone bands, calcareous	133	6	159	6
Mudstone, carbonaceous	1	0	293	0
Mudstone	9	0	294	0
Mudstone, carbonaceous	1	0	303	0
Mudstone	53	0	304	0
Mudstone, carbonaceous	1	0	357	0
Mudstone	16	0	358	0
Mudstone, carbonaceous	3	0	374	0
Mudstone	22	0	377	0
Mudstone, carbonaceous	3	0	399	0
Mudstone, calcareous	22	0	402	0
Mud stone, carbonaceous	1	0	424	0
Mudstone	45	0	425	0
Depth bored	-		470	0

Brackish water standing at 20 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Diamond Drill Report No.1. 1885 p. 35.

Parish of Coleraine

Bore No. 1.

Bore B.M.R. No. 89

Locality: Coleraine

Position: 1/4 mile west of Section 43.

Strata	Thickness Ft.	Depth Struck Ft.
Sandstone and clay	116	-
Shale and sandstone	102	116
Sandstone and clay	35	218
Sandstone and clay	285	253
	Depth bored	538

Commenced 2nd. August, 1882

Finished 24th October, 1882

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Diamond Drill Report No.1. 1885. p. 35.

Parish of Coleraine

Bore No.2

Bore B.M.R. No. 90

Locality: Coleraine

Position: 1 mile east of Section 47.

Strata	Thickness	Depth Struck
	Ft.	Ft.
Clay and sandstone	709	-
Clay	22	709
Sandstone	13	731
Clay with veins of lignite	5	744
Clay and sandstone	15	749
Depth bored	-	764

Commenced 13th November, 1882

Finished 20th January. 1883

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Report of Boring Operations. 1926. P.50

Parish of Coleraine

Bore No.3

Bore B.M.R. No. 91

Locality: Coleraine

Position: 3 chains west from south-east corner of Allotment 34A.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	4		-	
Clay, grey	19		4	
Mudstone	97		23	
Sandstone, calcareous	79		120	
Mudstone, carbonaceous	-	6	199	
Mudstone	108	6	199	6
Sandstone	22		308	
Mudstone, carbonaceous	2		330	
Mudstone	28		332	
Sandstone	60		360	
Mudstone	145		420	
Sandstone, calcareous	7		565	
Mudstone	10		572	
Sandstone	101		582	
Mudstone	40		683	
Sandstone. calcareous	12		723	
Depth bored			735	-

Slightly brackish water struck at 17 feet, standing at 40 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.54

Parish of Hilgay

Bore No.1.

Bore B.M.R. No. 92

Locality: Coleraine

Position: 15.55 chains at 344° from north-east corner of allotment 10-B, section 5

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	2		-	
Clay	6		2	
Clay, sandy	4		8	
Sandstone	13		12	
Calcareous band	-	4	25	
Sandstone	48	8	25	4
Mudstone, sandy	12		74	
Sandstone, clacareous, hard	-	7	86	
Mudstone and calcareous sandstone in alternating bands	80	11	86	7
Mudstone, sandy	22	6	167	6
Mudstone, carbonaceous	1		190	
Black coal, inferior	-	3	191	
Mudstone, carbonaceous	-	3	191	3
Mudstone, sandy	13	6	191	6
Sandstone, calcareous	6		205	
Mudstone, small carbonaceous bands at 229 feet	65		211	
Mudstone, sandy	35		276	
Sandstone	13		311	
Mudstone, sandy	14		324	
Mudstone, carbonaceous	1		338	
Mudstone	189		339	
Depth bored	-		528	

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.54

Parish of Hilgay

Bore No. 2.

Bore B.M.R. No. 93

Locality: Coleraine

Position: 13.1/2 chains at 240° from north-east corner of allotment 9-A, section 5.

Strata	Thickness Ft.	Depth Struck Ft.
Soil	3	-
Clay, yellow	10	3
Gravel, quartz and ironstone	2	13
Clay, sandy	8	15
Sandstone, hard	29	23
Mudstone, carbonaceous	1	52
Mudstone	7	53
Depth bored	-	60

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.54

Parish of Hilgay

Bore No.3

Bore B.M.R. No. 94

Locality: Coleraine

Position: 8.1/2 chains at 310° from south-east corner of allotment 9-B, section 5.

Strata	Thickness Ft.	Depth Struck Ft.
Soil	2	-
Clay, yellow and dark	21	2
Ironstone rubble	1	23
Sandstone	8	24
Mudstone, sandy	12	32
BLACK COAL	1	44
Mudstone	9	45
Depth bored -		54

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.54

Parish of Hilgay

Bore No.3

Bore B.M.R. No. 94

Locality: Coleraine

Position: 8.1/2 chains at 310° from south-east corner of allotment 9-B, section 5.

Strata	Thickness Ft.	Depth Struck Ft.
Soil	2	-
Clay, yellow and dark	21	2
Ironstone rubble	1	23
Sandstone	8	24
Mudstone, sandy	12	32
BLACK COAL	1	44
Mudstone	9	45
Depth bored		54

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.54

Parish of Hilgay

Bore No.4

Bore B.M.R. No. 95

Locality: Coleraine

Position: 14 chains at 255° from north-east corner of allotment 9-B, section 5.

Strata	Thickness Ft.	Depth Struck Ft.
Soil	2	-
Clay, yellow	17	2
Sandstone	3	19
Sandstone, sandy	10	22
Mudstone	6	32
BLACK COAL	2	38
Mudstone, sandy	3	40
		43
	Depth bored	

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations, 1926. P.54

Parish of Hilgay

Bore No.5

Bore B.M.R. No. 96

Locality: Coleraine

Position: 2 chains south-west from No.4 bore.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	2		-	
Clay, yellow	10		2	
Sandstone, yellow	20		12	
Mudstone, sandy	26		32	
Mudstone	3	6	58	
BLACK COAL	2		61	6
Mudstone	1	6	63	6
Depth bored			65	-

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.54

Parish of Hilgay

Bore No.6

Bore B.M.R. No. 97

Locality: Coleraine

Position: From No.5 bore, 5 chains south-west and in line with bores 4 and 5.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	2		-	
Clay, yellow	15		2	
Sandstone, yellow	27		17	
Mudstone, sandy	47		44	
Mudstone	21		91	
BLACKCOAL	1	6	112	
Mudstone	2	6	113	
Depth bored	-		116	

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.55

Parish of Hilgay

Bore No.7

Bore B.M.R. No.98

Locality: Coleraine

Position: 3.12 chains north-west from bore 6.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	2		-	
Clay Yellow	12		2	
Sandstone, yellow	10		14	
Mudstone, sandy	34		24	
Mudstone	8		58	
BLACK COAL	1	6	66	
Mudstone	2	6	67	6
Depth bored	-		70	-

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926.p.55

Parish of Hilgay

Bore No.8

Bore B.M.R. No. 99

Locality: Coleraine

Position: 10.39 chains at 165° from bore 3.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	2		-	
Clay, yellow and sandy	27		2	
Sandstone, yellow	7		29	
Mudstone, sandy	18		36	
Mudstone	3		54	
BLACK COAL	-	9	57	
Mudstone, sandy	12	3	57	9.
Depth bored	-		70	0

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.55.

Parish of Hilgay

Bore No.9

Bore B.M.R. No.100

Locality: Coleraine

Position: 9.31 chains south-west from bore 6.

Strata	Thickness Ft.	ins.	Depth Struck ft.	ins.
Soil	2		-	
Clay, yellow	8		2	
Sandstone, yellow	20		10	
Mudstone, sandy	34		30	
Sandstone, hard	2	6	64	
Mudstone, sandy	30	6	66	6
BLACK COAL and carbonaceous slate	-	6	97	
Mudstone	22	6	97	6
Mudstone, sandy	54		120	
Mudstone	1	6	174	
Mudstone	1	6	175	6
Depth bored	-		177	-

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations, 1926.p.55.

Parish of Hilgay

Bore No.10

Bore B.M.R. No. 101.

Locality: Coleraine

Position: 10 chains at 320° from bore 7.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	2		-	
Clay, yellow	10		2	
Sandstone	26		12	
Mudstone, sandy	54		38	
Mudstone	17		92	
Mudstone, sandy	16		109	
Sandstone	13		125	
Mudstone	4		138	
BLACK COAL	-	9	142	
Mudstone, sandy	2	3	142	9
Depth bored	-		145	-

Brackish water struck at 33 feet, standing at 30 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations, 1926, p.55.

Parish of Hilgay

Bore No.11

Bore B.M.R. No. 102

Locality: Coleraine

Position: 8 chains north from Bore No.10.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	4	-	-	
Clay	15		4	
Sandstone, yellow	5		19	
Mudstone	34		24	
Sandstone	21		58	
Mudstone	14		79	
BLACK COAL	-	4	93	
Mudstone, sandy	2	8	93	4
	Depth bored		96	

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.55.

Parish of Hilgay

Bore No.12

Bore B.M.R. No. 103

Locality: Coleraine

Position: 18 feet east from north-west corner of allotment 9-B, section 5.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1		-	
Ironstone gravel	2		1	
Clay, red	7		3	
Ironstone gravel	4		10	
Clay, white	6		14	
Sand	23		20	
Clay, yellow	6		43	
Sandstone	5		49	
Mudstone, sandy	9		54	
Mudstone	91		63	
Depth bored			154	

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1897. p.20

Parish of Merino

Bore No.1.

Bore B.M.R. No.104

Locality: Casterton

Position: 6 chains west of south-west corner of allotment 5, then 30 links north of south boundary of same allotment.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Surface soil and clays	15		-	
Shale and sandstone	40	6	15	
Band of carbonaceous matter	-	6	55	6
Shale and sandstone	34	5	56	
Band of carbonaceous matter		3	90	5
Shake and sandstone	111	4	90	8
Dark carbonaceous shale	1		202	
Shale and sandstone	57	1	203	
Dark carbonaceous shale		6	260	1
Shale and sandstone	114	1	260	7
COAL		8	374	8
Shale	51	1	375	4
Shale and sandstone, with coaly matter	16	2	426	5
Shale and sandstone	5	5	442	7
Dark shale with small bands of coaly matter	1	3	448	
Sandy shale	28	10	449	3
Dark shale	1		478	1
Bituminous shale	-	6	479	1
Shale and sandstone	83	3	479	7
Drift sand, with small flows of water	2	-	562	10
Sandy shale	44	11	564	10
Shale and sandstone, impregnated with coaly matter	54	10	609	9
Sandy shale	30	7	664	7
Depth bored			695	2

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Record of Boring Operations. 1897. p.20

Parish of Merino

Bore No.2

Bore B.M.R. No.105

Locality: Casterton

Position: Close to township. about 15 feet from creek and 1/2 mile north of No.1. Bore.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Surface soil and clay	12		-	
Sandstone and shale	30	9	12	
Coal		10	42	9
Shale	45	8	43	7
Coal		7	89	3
Shale and sandstone	116	7	89	10
Drift sand and gravel, with flow of water.	10		206	5
Gravel and conglomerate	1		216	5
Dark grey shales. impregnated with coaly matter	39		217	5
Shale and sandstone	317	11	256	5
Coaly matter		8	574	4
Shale	62	8	575	
Coal	1		637	8
Shale and sandstone	117	1	638	8
Coal	1	6	755	9
Shale	104	11	757	3
Brown shale and coaly matter		8	862	2
Shale and sandstone	58	4	862	10
Total Depth			921	2

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1924.p.28

Parish of Merino

Bore No.3. Bore B.M.R. No. 106.

Locality: Casterton

Position: 6.70 chains south-east then 0.18 chains south of the south-west corner of allotment 12.A, section A.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	3	-		-
Clay, yellow	33	-	3	-
Clay, sandy	9	-	36	-
Gravel, quartz	1	-	45	-
Mudstone	4	-	46	-
Sandstone	40	-	50	-
Mudstone and sandstone bands	27	-	90	-
Sandstone	17	-	117	-
Mudstone	24	-	134	-
Sandstone	21	-	158	-
Mudstone	53	-	179	-
Mudstone, sandy	48	-	232	-
Sandstone	12	-	280	-
Mudstone	49	-	292	-
BLACK COAL		2	341	-
Mudstone	12	10	341	2
Clod, carbonaceous	-	1	354	-
Mudstone	2	11	354	1
Clod, carbonaceous	-	1	357	-
Mudstone	17	11	357	1
Sandstone, calcareous	2	-	375	-
Mudstone	30	-	377	-
BLACK COAL	-	6	407	-
Mudstone	5	6	407	6
Clod, carbonaceous		1	414	-
Mudstone	34	11	414	1
Clod, carbonaceous		4	449	-
Mudstone	24	8	449	4
Sandstone	22	0	474	0
Mudstone with dark bands	34		496	
Mudstone	35	-	530	-
Sandstone, with mudstone bands	28	-	565	-
Sandstone. calcareous	37	-	593	-
Mudstone	7	-	630	-
BLACK COAL	1	2	637	-
Mudstone, 3 in. carbonaceous clod at 658 feet	100	10	638	2
Mudstone with sandstone bands	25	0	739	0
Mudstone	72	-	764	-
Sandstone, hard	1	6	836	-
Mudstone, sandy	3	6	837	6
Mudstone and sandstone bands	22	-	841	-
Carbonaceous clod	-	6	863	-
Sandstone and mudstone bands	46	6	863	6
Mudstone	2		910	-
Sandstone, hard	6	-	912	-
Sandstone and mudstone bands	46	-	918	-
Mudstone	1	-	964	-
Carbonaceous clod	-	4	965	-
Mudstone and sandstone	39	8	965	4
		Depth bored	1,005	-

Brackish water struck at 470 feet, standing at 25 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Record of Boring Operations. 1924.p.28

Parish of Merino

Bore No.4. Bore B.M.R. No.107

Locality: Casterton

Position: On road, 22 chains north from south corner of allotment 3, section 3.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil and sand	5	-	-	
Clay, dark	9	-	5	-
Clay, sandy	10		14	
Gravel, quartz	1		24	
Mudstone	64		25	
Sandstone	15		89	
Mudstone, 2 in. carbonaceous band at 142 feet	60		104	
Sandstone, calcareous	19		164	
Mudstone	53		183	
Sandstone, calcareous	17		236	
Mudstone	71		253	
Sandstone	36		324	
Depth bored			360	

Brackish artesian water at 324 feet, flow 240 gallons per hour; increased to 10,000 gallons per hour at 352 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Record of Boring Operations. 1925. p.41

Parish of Merino

Bore No.5. Bore B.M.R. No. 108

Locality: Casterton

Position: 46 feet west , then 34 feet south from south-east corner of allotment 30-C, no section, GlenorchyEstate.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1	-	-	
Clay, yellow sandy	29		1	
Sandstone, soft	18		30	
Mudstone, with bands of sandstone	132		48	
Mudstone	118		180	
Sandstone	10		298	
Sandstone, hard calcareous	1	6	308	
Sandstone	6	6	309	6
Mudstone	34		316	
Sandstone	26		350	
Mudstone	25		376	
Sandstone	10		401	
Mudstone and sandstone bands	29		411	
Mudstone, sandy	74		440	
Mudstone	20		514	
Sandstone	24		534	
Mudstone, sandy	39		558	
Sandstone, calcareous, hard	2		597	
Mudstone	83		599	
Sandstone	9		682	
Depth bored			691	

Brackish water standing at 47 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Record of Boring Operations. 1925. p.41

Parish of Merino

Bore No.6. Bore B.M.R. No.109

Locality: Casterton

Position: From the south-east corner of allotment 12, no section, Glenorchy Estate, 3 chains west, thence 6.63 chains south-west.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1		-	
Clay, yellow	7		1	
Clay, sandy	4		8	
Sand	2		12	
Sandstone, yellow	23		14	
Mudstone	228		37	
Sandstone	4		265	
Sandstone, calcareous, hard	2		269	
Mudstone	56		271	
Sandstone, calcareous hard	2		327	
Mudstone and sandstone bands	83		329	
Mudstone	97		412	
Mudstone, sandy	15		509	
Sandstone, calcareous	1		524	
Mudstone, sandy	52		525	
Sandstone, calcareous	-	6	577	
Mudstone, sandy	35	6	577	6
Sandstone	40		613	
Depth bored			653	

Salt water standing at 40 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations, 1925, p.41

Parish of Merino

Bore No.7. Bore M.M.R. No. 110.

Locality: Casterton

Position: From the south-west corner of allotment 31B, section A, Struan Estate, 43 links west, thence 10 links south.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1	-	-	
Clay, yellow	10		1	
Clay, sandy	16		11	
Sandstone, soft	6		27	
Gravel sand and quartz	6		33	
Mudstone, sandy	48		39	
Sandstone, calcareous	2		87	
Mudstone with small carbonaceous bands at 159 feet, 202 feet, 255 feet, 294 feet, and 310 feet	246		89	
Sandstone	6		335	
Sandstone, calcareous, hard	2	6	341	
Sandstone, soft	30	6	343	6
Mudstone and sandstone bands	66		374	
Mudstone, sandy, with small carbonaceous band at 446 feet	45		440	
Mudstone	7		485	
BLACK COAL	-	2	492	
Mudstone	116	10	492	2
Sandstone	4		609	
Mudstone	45		613	
Sandstone	5		658	
Mudstone. sandy	10		663	
BLACK COAL. INFERIOR	-	9	673	
Mudstone	12	3	673	9
Sandstone	9		686	
Mudstone	7		695	
Congl omerate	2		702	
Mudstone, sandy	15		704	
Sandstone	20		719	
Mudstone with small. carbonaceous bands at 472 feet, 746 feet, and 750 feet	27		739	
	Depth bored		766	

Brackish water standing at 10 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1925.p.45.

Parish of Sandford

Bore No. 1. Bore B.M.R. No. 111

Locality: Casterton

Position: 10 chains south-east along road from north-east corner of allotment 4, section 5.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
BLACK COAL	3	-		-
Clay, brown	12		3	
Sand and gravel	5		15	
Clay, sandy	3		20	
Sandstone, with calcareous bands	2		23	
Sandstone, fine	3		25	
Mudstone	73		28	
Sandstone, hard	7		101	
Mudstone	7		108	
Mudstone with ¢ sandstone bands	55		115	
Sandstone hard	2		170	
Mudstone	170		172	
Sandstone and mudstone bands	45		342	
Mudstone	33		387	
Sandstone and mudstone bands	70		420	
Sandstone, calcareous	3		490	
Sandstone and mudstone bands	43		493	
Mudstone	260		536	
Sandstone, calcareous	1		796	
Mudstone	29		797	
Depth bored		-	826	

Artesian water, brackish, struck at 9 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

ANNUAL REPORT FOR THE YEAR 1916. p.49

Parish of Bahgallah

Bore No. 1. Bore B.M.R. No.112.

Locality: Casterton - Wannon District

Position: S.E. corner of Allotment 13.

Strata	Thickness Ft. ins.	Depth Struck Ft. ins.
Tertiary sands	82	-
Jurassic sandstone and mudstone	186	82
	Depth bored	268

Fresh water struck at 6 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

ANNUAL REPORT FOR THE YEAR 1916, p.49.

Parish of Bahgallah

Bore No.2. Bore B.M.R. No.113

Locality: Casterton - Wannon District

Position: S.W. corner of allotment 13-F

Strata	Thickness Ft. ins.	Depth Struck Ft. ins.
Tertiary sands	72	-
Jurassic sandstone and mudstone	218	72
Depth bored -		290

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926.p.58

Parish of Mocamboro

Bore No.1. Bore B.M.R. No.114

Locality: Casterton

Position: 2.35 chains west, then 2.16 chains north, from north-west corner of allotment 2A2, section 11.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1		-	
Clay, yellow	11		1	
Clay, sandy	5		12	
Sand	2		17	
Ironstone, rubble	1		19	
Sandstone, yellow	5		20	
Carbonaceous ~~yellow~~ band	-	3	25	
Mudstone	60	9	25	3
Sandstone	5		86	
Mudstone, sandy	37		91	
Sandstone, calcareous, hard	2	2	128	
Mudstone, sandy	76	10	130	2
Sandstone, hard, calcareous	10		207	
Mudstone, sandy	113		217	
Sandstone	7		330	
Mudstone, sandy	19		337	
Sandstone	22		356	
Mudstone	39		378	
Sandstone	14		417	
Mudstone	42		431	
Sandstone	3		473	
Mudstone	53		476	
Sandstone, hard, calcareous	2		529	
Mudstone	37		531	
BLACK COAL and carbonaceous mudstone	7		568	
Mudstone	36		575	
Sand, white, with hard bands (No core)	20		611	
Sandstone, soft	13		631	
Depth bored -			644	

Artesian water (about 350 gallons per hour) struck at 616 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1928. p. 91.

Parish of Dartmoor

Bore No.1. Bore B.M.R. No. 115

Locality: Dartmoor

Position: In the centre of triangular Reserve at the north-west corner of allotment 24-A.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand	13		-	
Sand and blue clay	3		13	
Clay, blue, plastic	3		16	
Shells with lime	1	5	19	
Limestone rubble	3	7	20	5
Sand	2		24	
Sand and waterworn rubble	1		26	
Sand, drift	11		27	
Sand, red	8		38	
Sand and gravel	22		46	
Clay, black	47		68	
Sand	7		115	
Sand and clay	8		122	
Clay, sandy	39		130	
Sand	5		169	
Sand and gravel	46		174	
Clay, sandy	4		220	
Sand and gravel	1		224	
Clay, sandy	9		225	
Sand	2		234	
Clay, sandy	3		236	
Clay, black	28		239	
Sand, drift	34		267	
Clay, black	1		301	
Gravel and sand	7		302	
Sand, drift	22		309	
Clay, black	19		331	
Sand, drift	96		350	
Clay and sand	3		446	
Sand, drift	11		449	
Clay, brown	28		460	
Sand	6		488	
Clay, brown pyritic	19		494	
Clay	7		513	
Sand and pyrites	12		520	
Clay, pyritic	15		532	
Sand and pyrites	8		547	
Clay	-	6	555	
Sand with abundant nodules of pyrites	8	6	555	6
	Depth bored		564	

Brackish water struck at 88, 168, and 550 feet, standing at 10 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1928. p.91

Parish of Dartmoor

Bore No.2. Bore B.M.R. No. 116

Location: Dartmoor

Position: 30 chains south-east along road from north-west boundary of Dartmoor township.

Strata	Thickness Ft. ins.	Depth Struck Ft. ins.
Sand	5	-
Clay, sandy	4	5
Clay, blue, plastic	4	9
Limestone	7	13
Marl. grey	37	20
Limestone soft with shells	1	57
Limestone, hard, with shells	2	58
Limestone, soft, with shells	4	60
Marl, grey, with shells	27	64
Clay, blue, plastic, with shells	2	91
Marl, brown, with shells	4	93
Clay, brown, sandy	2	97
Sand andshells	3	99
Depth bored -		102

Fresh water struck at 11 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations, 1928, p.91

Parish of Dartmoor

Bore No. 3. Bore B.M.R. No.117

Location: Dartmoor

Position: 3 chains west from centre line of railway bridge.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil and silt	4		-	
Clay	10		4	
Clay, sandy	3		14	
Limestone	4		17	
Marl	5		21	
Marl, hard	1		26	
Marl	6		27	
Hard band	-	10	33	
Marl	17	2	33	10
Hard band	1		51	
Marl	9		52	
Hard band	1	7	61	
Marl	39	5	62	7
Hard band	2	6	102	
Sand and shells	2	6	104	6
Marl	8	0	107	
Depth bored			115	-

Water struck at 34 and 55 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1928. p.92

Parish of Dartmoor

Bore No.4. Bore B.M.R. No.118

Location: Dartmoor

Position: 0.24 chains east of bore 2.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand	6	-	-	
Clay	12		6	-
Limestone	4		18	
Marl	36		22	
Limestone	6		58	
Marl	33		64	
Limestone	1		97	
Sand and drift	16		98	
Clay, ligneous	29		114	
Sand and clay making water	2		143	
Clay, ligneous	24		145	
Sand and clay making more water	12		169	
Clay with several hard bands like sand	7		181	
Sand	6		188	
Clay ligneous	12		194	
Drift	18		206	
Depth bored	-		224	

Fresh water struck at 170 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1928. p92

Parish of Dartmoor

Bore No.4. Bore B.M.R. No.118

Location: Dartmoor

Position: 0.24 chains east ofbore 2.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand	16	-	-	
Limestone. broken	3		16	
Sand	9		19	
Limestone, broken	2		28.	
Sand, coarse	2		30	
Sand, drift	10		32	
Clay. ligneous	6		42	
Depth bored			48	

Fresh water struck at 32 feet,

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1928.p.92

Parish of Dartmoor

Bore No. 6. Bore B.M.R. No.120

Location: Dartmoor

Position: 20 chains east of bore 4

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil, sandy	2	-	-	
Clay and sand	3		2	
Limestone	11		5	
Limestone, broken, and sand	8		16	
Sand	4		24	
Limestone	3		28	
Clay	3		31	
Marl	39		34	
Hard band	1		73	
Marl	20		74	
Hard band	1		94	
Marl	34		95	
Hard band	-	2	129	
Marl	13	10	129	2
Hard band	1	-	143	
Marl	11		144	
Limestone, soft	5		155	
Marl	16		160	
Clay, ligneous	6		176	
Depth bored	-		182	-

Fresh water struck at 31 and 176 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1929. p.119

Parish of Dartmoor

Bore No.7. Bore B.M.R. No.121

Location: Dartmoor

Position: 19 chains north from Bore 4.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand	3	-	3	-
Clay, sandy	8	-	11	
Limestone	3		14	
Sand	6		20	
Limestone, broken	6		26	
Sand and drift	72		98	
Clay	1		99	
Sand	1		100	
Depth bored	-			

Water struck at 83 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1929. p.119

Parish of Dartmoor

Bore No.8. Bore B.M.R. No.122

Location: Dartmoor

Position: 9.5 chains north from Bore 4.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand	12	-		-
Clay	1		12	
Marl	30		13	
Hard band	1		43	
Marl	6		44	
Hard band	-	6	50	
Marl	3	-	50	6
Hard band	-	10	53	6
Marl	5	8	54	4
Hard band	-	2	60	-
Marl	15	10	60	2
Limestone, soft	1	0	76	0
Sand, drift	15	-	77	
Clay, ligneous	5		93	
Depth bored			96	-

Water struck at 55 and77 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OFVICTORIA

Records of Boring Operations. 1929.p.119

Parish of Dartmoor

Bore No.9. Bore B.M.R. No.123

Location: Dartmoor

Position: 17 chains north-east along road, then 2 chains north-west from south-west conner of allotment 38-E.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil, sandy	1	-		-
Sand	7		1	
Clay, grey, sandy	4	6	8	-
Limestone, ~~brown~~ broken	8	6	12	6
Limestone, hard	1		21	
Pug. blue	1		22	
Limestone, soft, with sand	2		23	
Hard band		3	25	
Clay, with fossils	2	3	25	3
Limestone, broken	3	6	27	6
Limestone, hard	-	8	31	
Clay, yellow	-	10	31	8
Clay, ligneous	1	6	32	6
Depth bored			34	-

Good stock water s truck at 14 and 23 feet, s tanding at 6 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1929. p.119

Parish of Dartmoor

Bore No. 10. Bore B.M.R. No.124.

Location: Dartmoor

Position: 1.40 chains north, then 0.76 chains west, from south-west corner of allotment 39-A.

Strata	Thickness Ft, ins.	Depth Struck Ft. ins.
Sand	3 -	-
Limestone	12	3
Limestone, with shells	1 6	15 -
Limestone, alternating layers of hard and soft	31 6	16 6
Marl	11	48
Hard band	- 6	59
Marl	33 6	59 6
Hard band	- 6	93 -
Marl	1 6	93 6
Sand and marl	1 -	95 -
Sand and drift	7	96
Depth bored		103

Good stock water struck at 35 and 96 feet, standing at 7 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations 1929. p.119

Parish of Dartmoor

Bore No.11. Bore B.M.R. No.125.

Location: Dartmoor

Position: 21 chains north of south-west corner of allotment 39.A.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1	-	-	
Limestone, soft	4		1	
Limestone, hard	1		5	
Limestone, soft	24		6	
Limestone, hard	1	6	30	
Limestone, soft	3	6	31	6
Limestone, hard	1	-	35	
Limestone, soft	1	-	36	-
Clay and shells	2	6	37	
Limestone. soft	2	6	39	6
Limestone, hard	-	6	42	-
Marl, with trace of lignite	39	-	45	
Sand drift	3	8	84	
Depth bored			87	8

Fresh water struck at 29 feet standing at 25 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1929. p.119

Parish of Dartmoor

Bore No.12. Bore B.M.R. No.126

Location: Dartmoor

Position: 20 chains east from Bore 10.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1	-	-	
Limestone, yellow	3		1	
Limestone, with large shells	2		4	
Limestone, rubble	7		6	
Limestone with shells	2		13	
Limestone rubble	3		15	
Clay, ligneous	-	6	18	
Sand	-	6	18	6
Limestone, hard	3	-	19.	
Limestone, soft	1		22	
Limestone, dark	-	6	23	
Limestone, yellow, soft.	3	6	23	6
Limestone, brown, hard	2		27	
Sand and rubble	3		29	
Limestone	3		32	
Marl, blue, with soft shells	2		35	
Clay, yellow, with shells	1		37	
Limestone, hard	9		38	
Marl, grey	21		47	
Sand	2		68	
Lignite	1		70	
	Depth bored		71	

Fresh water struck at 29 feet, standing at 25 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Record of Boring Operations. ~~192~~ 1929. p.120

Parish of Dartmoor

Bore No. 13. Bore B.M.R. No.127

Location: Dartmoor

Position: 12.61 chains north-west, then 33 links south-west, from south-west corner of allotment 32.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand	6	-	-	
Sand and broken limestone	11		6	
Sand ahd limestone	7		17	
Limestone	3		24	
Sand	39		27	
Clay, ligneous	11		66	
Sand, yellow	16		77	
Sand drift	9		93	
Depth bored	-		102	

Water struck at 60 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations 1930. p.138

Parish of Dartmoor

Bore No.14. Bore B.M.R. No.128

Location: Dartmoor

Position: 4.90 chains south, then 3.81 chains east from the north-east corner of State School allotment.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Limestone, broken	20	-	-	
Limestone, hard	1		20	
Limestone, broken	9		21	
Sand	5		30	
Clay, sandy	2		35	
Clay	3		37	
Marl	16		40	
Hard band	1		56	
Marl	39		57	
Hard band	-	6	96	
Coraline	10	6	96	6
Marl	16		107	
Hard band	1		123	
Marl	4		124	
Hard band	1	6	128	
Marl	45	6	129	6
Hard band	2	6	175	
Marl	33	6	177	6
Clay, ligneous and sand	2		211	
Sand, drift	2		213	
	Depth bored		215	

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930.p.138

Parish of Dartmoor

Bore No. 15. Bore B.M.R. No.129

Location: Dartmoor

Position: 9.09 chains east, then 0.37 chains north from the south-west corner of allotment 27-B.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	2	-		-
Clay	5		2	
Rubble, limestone	5		7	
Limestone, white, hard bands	8		12	
Sand, limestone	7		20	
Limestone, hard with shells	1	9	27	
Marl, hard	34	3	28	9
Marl, with hard bands	88		63	
Depth bored			- 151	

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930.p.138

Parish of Dartmoor

Bore No.16. Bore B.M.R. No.130

Location: Dartmoor

Position: 29.09 chains east then 0.21 chains south from the south-west corner of allotment 27-B.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1	-	-	
Clay	3	-	1	-
Limestone, broken, hard limestone bands	18		4	
Clay	1		22	
Limestone, fossilferous	4		23	
Marl, hard bands	64		27	
Coraline	9		91	
Marl	16		100	
Clay, ligenous	2		116	
Depth bored			118	-

Water struck at 9 and 91 feet. Shark's tooth obtained at 91 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930.p.139

Parish of Dartmoor

Bore No.17. Bore B.M.R. No.131

Location: Dartmoor

Position: 59.09 chains east then 0.27 chains north from the south-west corner of allotment 27-B.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Limestone, broken	4	-	-	
Limestone. hard	10		4	
Limestone	11		14	
Clay	2		25	
Limestone	3		27	
Clay	4		30	
Marl	5		34	
Clay, ligneous	3		39	
Clay and sand	2		42	
Depth bored			44	-

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930.p.139

Parish of Dartmoor

Bore No.18. Bore B.M.R. No.132.

Location: Dartmoor

Position: 59.09 chains east, then 24 chains south from south-west corner of allotment 27-B.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Limestone, broken	7	-	7	-
Limestone, hard bands	20		27	
Clay	2		29	
Marl	8		37	
Marl, pdyzoal	27		64	
Marl	7		71	
Clay, ligneous	1	6	72	6
Land	2			
Depth bored			74	6

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930. p.130

Parish of Dartmoor

Bore No.19. Bore B.M.R. No. 133.

Location: Dartmoor

Position: 2 chains north-west then 1 chain south-west from north corner of allotment 16.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil, sandy	1	-	-	
Clay, sandy	3		1	
Clay, yellow	3		4	
Clay, blue	6		7	
Clay, yellow oyster shells	9		13	
Limestone, shelly	5		22	
Limestone	2		27	
Hard band	3		29	
Limestone sand, hard flinty bands	17		32	
Clay, yellow oyster shells	2		49	
Clay, blue stiff	1	6	51	-
Silt, hard bands of stone	3	6	52	5
Clay, blue	2	6	56	
Silt, grey and stone	2		58	6
Limestone, hard, with oyster shells	1	6	60	6
Clay. yellow	1		62	
Limestone, hard, shelly	1	9	63	
Clay, yellow with rubble	1	3	64	9
Clay, ligneous	6	-	66	
Depth bored			72	-

Water struck at 48 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations.1930.p.139

Parish of Dartmoor

Bore No.20. Bore B.M.R. No.134.

Location: Dartmoor

Postition: 0.44 chains south-east, then 0.24 chains north-east from the west corner of allotment 6-C.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil, sandy	3	-	-	
Clay, yellow	9		3	
Clay and rubble	2		12	
Sand, limestone, small hard bands	17		14	
Clay, blue	21		31	
Silt, grey, with oyster shell	2		52	
Marl, soft, sandy, with hard bands	27		54	
Marl, soft, silty	15		81	
Marl, polyzoal	9		96	
Marl, yellow, silty	2		105	
Marl, grey, silty, polyzoal, with firm pebbles	69		107	
Marl, yellow, sandy	7		176	
Marl, grey, sandy	4		183	
Depth bored			187	

Water struck at 14 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations, 1930, p.139

Parish of Dartmoor

Bore No.21. Bore B.M.R.No.135.

Location: Dartmoor

Position: 32.50 chains south-east, then 0.72 chains south-west from the west corner of allotment 6B.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil, sandy	1	6	-	
Clay, yellow, silty	22	6	1	6
Clay, grey, with shells	2		24	
Limestone, broken, shells	4		26	
Clay, yellow	3		30	
Limestone, broken, shelly	3		33	
Clay, yellow, shelly	3		36	
Sand, limestone, shelly	25		39	
Silt, blue	9		64	
Silt, grey	6		73	
Marl	79		79	
Depth bored			158	-

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930.p.139

Parish of Dartmoor

Bore No.22. Bore B.M.R. No.136

Position: Dartmoor

Location: On the road 28.50 chains north-west, then 0.75 chains south-west fromthe south corner of allotment 14B.

Strata	Thickness Ft. ins.	Depth Struck Ft. ins.
Soil, sandy	2 -	-
Clay, yellow	14	2
Clay, dark	6	16
Limestone, broken, shelly	1	22
Clay, yellow, shelly	6	23
Limestone, shelly	7	29
Sand, limestone, with hard bands	5	36
Clay, yellow	1	41
Sand, limestone, with hard bands	14	42
Silt, blue	4	56
Silt, grey, hard bands	5	60
Marl, 6-in. hard band at 88 ft.	39	65
Clay, ironstone rubble	1	104
Clay, ligneous and sand	2	105
Depth bored		107

Water struck at 42 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930.p.140

Parish of Dartmoor

Bore No.23. Bore B.M.R. No.137

Location: Dartmoor

Position: 28.50 chains north-west, then 30.75 chains south-west from the south corner of allotment 14-B.

Strata	Thickness Ft.	ins.	Depth Steuck Ft.	ins.
Soil, sandy	1	-	-	
Clay, yellow	5		1	
Limestone, broken	3		6	
Clay, yellow, shelly	10		9	
Limestone, sandy	7		19	
Clay, silty. shelly	6		26	
Limestone and sand	7		32	
Limestone. hard	13		39	
Clay, yellow	1		52	
Silt, blue	6		53	
Silt, grey, hard bands	8		59	
Limestone and sand, limey	6		67	
Clay, sandy	1		73	
Sand, coarse, drift	2		74	
	Depth bored		76	

Water struck at 69 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1930. p.140.

Parish of Dartmoor

Bore No.24. Bore B.M.R. No.138

Location: Dartmoor

Position: From the south corner of allotment 14-B, at the intersection of the roads 19 chains north-east then 0.35 chains south.

Strata	Thickness	Depth Struck

Location: Dartmoor

Position: From the south corner of allotment 14-B, at the intersection of the roads 19 chains north-east then 0.35 chains south.

Strata	Thickness Ft. ins.	Depth Struck Ft. ins.
Soil	1 -	-
Clay	3	1
Limestone, broken	5	4
Clay, yellow, shelly	12	9
Limestone	1	21
Clay, shelly	4	22
Clay and limestone, alternate bands	6	26
Sand, limestone	13	32
Silt, blue	8	45
Clay and,limestone	4	53
Sandstone, yellow	2	57
Sand, quartz	6	59
Depth bored		65 -

Water s truck at 57 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations 1946.p.26.

Parish of Glenelg

Bore No.1. Bore B.M.R. No.139

Locality: Nelson

Position: From south-west end of bridge over Glenelg River, 1,080 links on a bearing of 290 degrees. Surface level, 10 feet.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Limestone	111	-	-	-
Limestone, with hard bands	141		111	
Limestone, with flint bands	160		252	
Limestone	18		412	
Marl	6		430	
Limestone	14		436	
Greysandy marl	3		450	
Yellow marl	2		453	
Grey marl	20		455	
Limestone	60		475	
Red dolomite	49		535	
Limeztone	18		584	
Pink dolomite	22		602	
Grey marl	5		624	
Greenish limestone	15		629	
White limestone	22		645	
Greenish limestone	22		667	
Limestone, with hard bands	31		689	
Grey marl	16		720	
M arl, with hard bands	54		736	
Fossiliferous marl	17		790	
Marl, with green specks	5		807	
Brown sand, with green specks	5		812	
Brown Friable sand	68		817	
Brown friable sand, with consolidated bands	51		885	
Yellow sandy clay	5		936	
Yellow and brown sandy clay	7		941	
Brown and green consolidated sand	8		948	
Brown consolidated sand with green specks and glauconite	18		956	
Greenish sand and brown sand	15		974	
Brown consolidated sand	1		989	
Dark ligneous sandy clay	57		990	
Grey, ligneous sand	91		1,047	
Dark ligneous sandy clay with pyrites	9		1,138	
Dark grey ligneous sand	152		1,147	
Grey micaceous sand and gravel	57		1,299	
Ligenous sandy clay	246		1,356	
Ligenous sand	23		1,602	
Grey sand	7		1,625	
Ligenous sandy clay	8		1,632	
Sand and gravel	28		1,640	

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Fine grey micaceous sand	22		1,668	
Coarse sand with thin gravel bands	42		1,690	
Fine, grey micaceous sand	100		1,732	
Dark micaceous sandy clay	35		1,832	
Grey sand	7		1,867	
Dark micaceous sandy clay	27		1,874	
Fine grey micaceous sand	23		1,901	
Grey friable sand	19		1,924	
Micaceous sandy clay	20		1,943	
Grey friable sand	16		1,963	
Consolidated sand	1		1,979	
Grey micaceous sand	36		1,980	
Brown consolidated sand	2		2,016	
Grey micaceous sand	38		2,018	
Dark micaceous sandy clay	33		2,056	
Grey sand	16		2,089	
Sand and gravel	20		2,105	
Grey sand	7		2,125	
Dark micaceous sandy clay	80		2,132	
Grey sand and gravel with pyrites	46		2,212	
Grey micaceous sand	20		2,258	
Dark sandy clay	17		2,278	
Consolidated grey sand	1		2,295	
Dark sandy clay with pyrites	4		2,296	
Dark micaceous sandy clay with pyrites	44		2,300	
Dark grey ligneous sandy clay	17		2,344	
Dark grey sandy clay	9		2,361	
Coarse grey sand	20		2,370	
Grey sandy micaceous clay	16		2,390	
Dark micaceous sandy clay	10		2,406	
Dark micaceous sandy clay with pyrites	11		2,416	
Grey sand and water-worn gravel	50		2,427	
Fine micaceous sand	61		2,477	
Micaceous sandy clay and pyrites	6		2,538	
Dark micaceous sand	8		2,544	
Dark micaceous sandy clay	32		2,552	
Coarse gravel	3		2,584	
Dark ligneous sandy clay	21		2,587	
Sand	9		2,608	
Grey micaceous sand	22		2,617	
Dark micaceous sandy clay	43		2,639	
Grey sand	55		2,682	
Sandy clay with thin bands of pyrites	10		2,737	
Grey sand with thin layers of brown clay and pyrites up to 3 inches thick	20		2,747	
Grey sandy clay or siltstone	19		2,767	
Dark ligneous clay wiht thin bands of grey sand and pyrites	17		2,786	
Dark siltstone	16		2,803	
Consolidated grey sand	1	6	2,819	
Dark siltstone	1	6	2,820	6
Consolidated grey sand	6	6	2,822	
Dark siltstone	39	6	2,828	6
Grey micaceous sand	1		2,868	
Dark sticky banded siltstone with thin band of pyrites	60		2,869	
Hard cemented sand	3		2,929	
Dark micaceous banded siltstone with pyrites	114		2,932	
Partly consolidated brown sand with harder bands of micaceous sand	13		3,046	
Dark banded silstone with hard sand bands and pyrites	41		3,059	

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Consolidated grey micaceous sand	2	-	3,100	-
Hard sandy siltstone	33		3,102	
Fine-grained grey micaceous sand	19		3,135	
Hard siltstone andpyrites	20		3,154	
Grey micaceous sand	35		3,174	
Fine grey micaceous sand with solid bands and pyrites.	31		3,209	
Dark micaceous sandy clay	5		3,240	
Hard cemented sand	1		3,245	
Soft micaceous sand	14		3,246	
Cemented sand	5		3,260	
Soft grey micaceous sand	125		3,265	
Hard cemented sand	159		3,390	
Dark sandy clay	6		3,549	
Dark sticky sandy clay with fossil plant remains	29		3,565	
Dark sandy clay	37		3,594	
Dark sandy clay, fossiliferous and micaceous	31		3,631	
Sandy clay with hard bands	16		3,662	
Dark grey cemented pyritic sand	38		3,678	
Dark micaceous sandy clay with thin layers of grey sand	47		3,716	
Hard sandy clay	3		3,763	
Soft sandy clay	38		3,766	
Fine soft sand	9		3,804	
Micaceous sandy clay	16		3,813	
Cemented sand	3		3,829	
Fine and coarse micaceous sand	18		3,832	
Sandy clay with hard bands	18		3,850	
Grey sand	5		3,868	
Brown micaceous sandy clay	14		3,873	
Grey sand with bands of gravel	30		3,887	
Sandy clay with bands of soft sand	34		3,917	
Cemented sand	14		3,951	
Grey sand with bands of sandy clay	11		3,965	
Soft grey sand	16		3,976	
Cemented sand	11		3,992	
Soft sand	9		4,003	
Samd with cemented bands	10		4,012	
Dark sandy micaceous clay	19		4,022	
Sand with bands of sandy clay	11		4,041	
Consolidated sand	5		4,052	
Soft sand	15		4,057	
Consolidated sand	13		4,072	
Soft sand	10		4,085	
Consolidated sand with pyrites	114		4,095	
Soft grey sand	7		4,209	
Medium-grained white siliceous sand	5		4,216	
Dark micaceous sandy clay	2		4,221	
Grey coarse-grained cemented sand	68		4,223	
Soft sand with bands of sandy clay	11		4,291	
Brown sandy micaceous clay	15		4,302	
Sticky brown sandy clay	41		4,317	
Compact sand	3		4,358	
Sandy clay	4		4,361	
Brown sandy micaceous clay with pyrites	10		4,365	
Brown samdy clay	5		4,375	
Grey sand	39		4,380	
Grey sand with bands of sticky clay	9		4,419	
Grey sand with hard bands	72		4,428	

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Consolidated sand	2		4,500	
Brown sandy clay	1		4,502	
Fine grey micaceous sand	21		4,503	
Sandy clay	31	6	4,524	
Cemented sand	232	6	4,555	6
Medium-grained sand with green grains and carbonaceous bands	5		4,788	
Cemented sand with pyrites	15		4,793	
Medium angular-grained siliceous sand with green pyritic grains	3		4,808	
Sandy clay	5		4,811	
Grey micaceous sand with thin layers of clay and cemented bands	338		4,816	
Hard, fine, grey sandstone	38		5,154	
Soft sand	41		5,192	
Soft sand with hard bands	60		5,233	
Consolidated micaceous sand with sandy mudstone bands	12		5,293	
Sandy mudstone	7		5,305	
Cemented sand	7		5,312	
Soft sand	55		5,319	
Cemented sand	17		5,374	
Coarse sand with micaceous particles	98		5,391	
Soft sand	5		5,489	
Cemented sand	16		5,494	
Fine-grained siliceous pyritic sand	79		5,510	
Grey pyritic sand	7		5,589	
Soft fine grey sand	42		5,596	
Cemented sand	2		5,638	
Soft sand	35		5,640	
Cemented sand	1		5,675	
Soft grey sand	22		5,676	
Sand with bands of micaceous sandy clay	10		5,698	
Sand with mudstone bands	25		5,708	
Sand with clay bands	41		5,733	
Sand with mudstone bands	11		5,774	
Grey consolidated sand	58		5,785	
Grey sand with bands of greyish mudstone	23		5,843	
Consolidated brown sand	49		5,866	
Soft grey sand	1		5,915	
Cemented sand	58		5,916	
Brownish sandy clay and pyrites	33		5,974	
Consolidated sand	55		6,007	
Dark grey micaceous sand and pyrites	174		6,062	
Dark grey micaceous sand and pyrites with traces of glauconite	24		6,236	
Consolidated sand with pyrites	27		6,260	
Dark grey micaceous sand with light grey streaks and traces of glauconite	11		6,287	
Soft sand	38		6,298	
White cemented sand with pyrites	1		6,336	
Cemented sand	205		6,337	
Consolidated grey and brown sand	9		6,542	
Soft sand	2		6,551	
Consolidated grey and brown sand	22		6,553	
Soft sand	8		6,575	
Consolidated grey and brown sand	28		6,583	
Grey cemented sand	7		6,611	
Consolidated sand	16		6,618	
Soft banded sand	16		6,634	
Consolidated sandstone	26		6,650	
Consolidated fine sand with pyrites	147		6,676	

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soft sand	21		6,823	
Cemented sand with copper pyrites	31		6,844	
Soft sand	100		6,875	
Consolidated sand with pyrites	75		6,975	
Soft sand	43		7,050	
Copper pyrites	1		7,093	
Soft sand	38		7,094	
Consodidated sand	42		7,132	
Soft sand	14		7,174	
Consolidated sand with bands of pyrites	117		7,188	
Total depth	-		7,305	

STATE RIVERS AND WATER SUPPLY COMMISSION, VICTORIA

THE UNDERGROUND WATER RESOURCES OF VICTORIA

Volume 1. 1947. p.100

Parish of Portland

Bore No.1. Bore B.M.R. No.140

Locality: Portland

Position: Portland township

Strata	Thickness Ft.	Depth Ft.
Basalt and clay	165	0 - 165
Limestone with some bands of	535	165 - 700
Mainly marly limestone with some limestone bands	1,565	700 - 2265
Depth bored -		2265

STATE RIVERS AND WATER SUPPLY COMMISSION, VICTORIA

THE UNDERGROUND WATER RESOURCES OF VICTORIA

Volume 1. 1947. p.98

Parish of Portland

Bore B.M.R. No. 142

Locality: Portland

Position: about 1 mile north of Portland Township.

Strata	Thickness Ft.	Depth Ft.
Shaft (no information)	76	0 - 76
Soft basalt	4	76 - 80
Clay	26	80 - 106
Limestone and marl	82	106 - 188
Alternating bands of hard and soft limestone	434	188 - 622
	Depth bored -	622

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.53

Parish of Heywood

Bore No.1. Bore B.M.R. No. 143.

Location: Heywood

Position: 3.1/2 chains east from south-west corner of allotment 14-A, section 1.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil and sand	3	-	3	-
Clay, red	25		28	
Clay, brown	8		36	
Limestone, white, soft	49		85	
Limestone, grey	16			
Depth bored			101	-

Fresh water struck at 36 feet

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.53

Parish of Heywood

Bore No.2. Bore B.M.R. No.144.

Locality: Heywood

Position: 8.1/2 chains west from south-wast corner of allotment 27, section 1.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil and sand	3	-	-	
Clay, brown	4		3	
Clay, red	5		7	
Limestone, soft	1		12	
Limestone, very hard	2		13	
Limestone, flinty	12		15	
Limestone, soft	46		27	
Limestone, grey	31		73	
Depth bored			104	

Fresh water struck at 30 feet, standing at 32 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations 1926. p.53

Parish of Heywood

Bore No.3. Bore B.M.R. No.145

Locality: Heywood

Position: 20 chains west from south-east corner of allotment ~~26~~ 27, section 1.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins,
Soil	3	-	-	
Sand	3		3	
Clay, brown	2		6	
Clay, red	8		8	
Clay, grey	15		16	
Limestone	22		31	
Limestone, grey	51		53	
		-	104	
Depth bored				

Fresh water struck at 16 feet, standing 13 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926. p.53.

Parish of Heywood

Bore No.4. Bore B.M.R. No.146.

Locality: Heywood

Position: 7 chains west, then 0.61 chains north from south-east corner of allotment 27-A. Section 1.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1	-	-	
Clay, red	5		1	
Clay, brown	3		6	
Limestone, hard	11		9	
Limestone soft	23		20	
Limestone with hard bands	43		43	
Limestone, grey	15		86	
Depth bored	-		101	

Fresh water struck at 24 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1926.p.54

Parish of Heywood

Bore No.5. Bore B.M.R. No.147

Locality: Heywood

Position: 6 chains west, then 0.34 chains north from south-east corner of allotment 18. section 1.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand and gravel	2	-	-	
Clay, red	8	-	2	-
Sand	5		10	
Clay , sandy	15		15	
Clay , brown	26		30	
Limestone, soft	40		56	
Limestone, grey	5		96	
Depth bored	-		101	

Fresh water struck at 58 feet, standing at 10 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring operations. m 1927.p.70

Parish of Heywood

Bore No.6. Bore B.M.R. No.148

Locality: Heywood

Position: 1.65 chains east, then 50 links south from north-east corner of allotment 19, section 1

Strata	Thickness Ft.	ins	Depth Struck Ft.	ins.
Sand	2	-	-	
Clay, brown	17		2	
Clay, grey	2		19	
Clay, brown	39		21	
Limestone, decomposed	10		60	
Limestone	19		70	
Limestone, grey	11		89	
	Depth bored -		100	

Brackish water struck at 46 feet, standing at 26feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1927.p.70

Parish of Heywood

Bore No. 7. Bore B.M.R. No.149

Locality: Heywood

Position: South-west corner of allotment 19, Section 1.

Strata	Thickness Ft	ins.	Depth Struck Ft.	ins.
Sand	2	-	-	
Clay, red	5		2	
Clay, brown	11		7	
Limestone	56		18	
Limestone , soft	13		74	
Limestone, grey	13		87	
Depth bored	-		100	

Water at surface

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1927. p.70

Parish of Heywood

Bore No.8. Bore B.M.R. No.150

Locality: Heywood

Position: South-east corner of Allotment 8.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Sand	1	-	-	
Clay and conglomerate	16		1	
Clay, grey	7		17	
Clay, red	6		24	
Clay, brown	6		30	
Limestone, decomposed	23		36	
Limestone, grey	41		59	
	Depth bored	-	100	

Brackish water struck at 19 feet, standing at 15 feet.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1927, p.88

Parish of Yulecart

Bore No.1. Bore B.M.R. No.151

Locality: Hamilton

Position: 4 chains south from bridge over Muddy Creek, bearing 198°.

Strata	Thickness Ft.	ins.	Depth struck Ft.	ins.
Soil	2	-	-	
Pug, grey with lime	2		2	
Limestone, decomposed	5		4	
Limestone, hard	1		9	
Limestone, soft	20		10	
Limestone, red	4		30	
Limestone, green	1		34	
Limestone, hard	1		35	
Limestone, soft	2		36	
Limestone, hard, containing shells	1		38	
Shells and marl	29		39	
Marl with shells	12		68	
Limestone, blue	5		80	
Limestone, green	1		85	
Marl and limestone	14		86	
Sand	2		100	
Limestone, hard	2		102	
Limestone, grey	31		104	
Sand with waterworn pebbles	2		135	
Limestone, grey	22		137	
Sand and silt	1		159	
Limestone, hard with shells	1		160	
Silt	25		161	
Limestone, hard	1		186	
Marl, grey	6		187	
Sand	22		193	
Limestone band, hard	-	7	215	
Sand	8	5	215	7
Limestone, hard	-	8	224	
Silt, sand	5	4	224	8
Limestone, hard	-	4	230	
Silt and sand	6	4	230	4
Limestone, hard	1	4	236	8
Sand and waterworn pebbles	2	-	238	
Silt and sand	12		240	
Depth bored	-		252	

Artesian water struck at 40 feet, 750 gallons per hour: increased flow of water between 238 feet and 240 feet from 730 to 4,000 gallons per hour.

DEPARTMENT OF MINES

GEOLOGICAL SURVEY OF VICTORIA

Records of Boring Operations. 1925.p.47

Parish of Tahara

Bore No.1. Bore B.M.R. No.152

Locality: Coleraine

Position: 1 chain north from north corner of allotment 1, section 18.

Strata	Thickness Ft.	ins.	Depth Struck Ft.	ins.
Soil	1	6	-	
Clay	5	6	1	6
Mudstone with small carbonaceous bands	164	-	7	
Mudstone, sandy	9		171	
Sandstone, calcareous, hard	1	4	180	
Samdstone, soft	22	8	181	
Mudstone, bottom 12 in. indurated	27		204	
Sandstone, calcareous	2	6	231	
Mudstone	75	6	233	6
Sandstone	11		309	
Mudstone	3		320	
Carbonaceous mudstone	-	4	323	
Mudstone	19	8	323	4
Mudstone, sandy	52		343	
Sandstone	4		395	
Samdstone, calcareous	2		399	
Mudstone, sandy	21		401	
	Depth bored -		422	-

Extract from "Structural Survey in the Hundred of Blanche"

by R.A. Keble.

Log of Associated Oil Company's Bore, Section 301, Hundred of Blanche Bore B.M.R. No. 230

Sample	Description of Strata	Thickness Feet	Depth Struck Feet
1	Surface drift	5	0
2	Grey, calcareous sandstone	4	5
3	Red clay	9	9
4	Sandy Clay, brick	16	18
5	Red dolomite	6	34
6	Pink dolomite	15	40
7	Cream dolomite	5	55
8	Conglomerate	3	60
9	Cream conglomerate	3	63
10	Grey dolomite with hard streaks	16	66
11	Red dolomite	10	82
12	Grey dolomite	6	92
13	Red dolomite with streaks of yellow dolomite	44	98
14	Estuarine silt, black mud and sand	30	142
15	Brown clay	179	172
16	Silt-corals and sharks' teeth (R.A.K.)	2	351
17	Iron pyrites	3	353
18	Brown clay	174	356
19	Sandy clay	25	530
20	Brown clay with limestone boulders	85	555
21	Sand	35	640
22	Brown clay with boulders	45	675
23	Brown clay with boulders and sand	120	720
24	Clay boulders with sand	60	840
25	Brown sandy clay	100	900
26	Conglomerate	30	1000
27	Brown sticky clay	25	1030
28	Brown clay and limestone	10	1055
29	Clay conglomerate	5	1065
30	Hard brown clay	17	1070
31	Brown clay	11	1087
32	Brown clay and gypsum	7	1098
33	Brown sandy clay	10	1105
34	Brown clay	10	1115
35	Brown sandy clay	45	1125
36	Brown clay	11	1170
37	Blue sandy clay	9	1181
38	Brown clay	30	1190
39	Brown clay and gypsum	14	1220
40	Fine siliceous sand	40	1234
41	Brown clay	26	1274
42	Brown clay and gypsum	2	1300
43	Siliceous sand streak	2	1302
44	Brown clay and gypsum	54	1304
45	Brown clay	32	1358
46	Brown sandy clay	50	1390
47	Brown clay	295	1440
48	Brown sandy clay	30	1735
49	Sandstone and Pyrites	1	1765

(Continued)

Sample	Description of Strata	Thickness Feet	Depth Struck Feet
50	Sandstone	5	1766
51	Brown clay	12	1771
52	Hard brown sandy clay	35	1783
53	Brown sticky clay	10	1818
54	Brown sandy clay	54	1828
55	Hard sand	5	1882
56	Hard and sandy brown clay	20	1887
57	Hard sand	11	1907
58	Brown sandy clay	20	1918
59	Hard sand (reported oil sand)	21	1938
60	Dolomite ?	7	1959
61	Iron pyrites	2	1966
62	Brown clay	20	1968
63	Brown sticky clay	10	1988
64	Brown clay	31	1998
65	Brown sandy clay	15	2029
66	Grey sandy clay	27	2044
67	Brown sticky clay	21	2071
68	Fine carbonaceous sandstone with foraminifera and mollusca (R.A.K.)	3	2092
69	Brown hard shaly clay	15	2095
	Depth bored		2,110