

TR5-188-193

PROPOSED DRILLING ON THE FINGAL COALFIELD

by J. Baird.

During January 1960 a survey of portion of the Fingal Coalfield was undertaken for the purpose of proposing diamond drill holes additional to the two already approved on Yeates' leases.

LOCATION AND ACCESS

The area examined includes the three producing coal mines near the town of Fingal, all of which are on the steep northern fall of the Fingal Range to the east of the town. The creeks which have their headwaters in these hills flow north to join the Break O'Day River, except Waratah Creek in the south of the area, which flows west to join Fingal Rivulet.

The most westerly leases are those held by Mr. J. S. Yeates, and cover 880 acres comprising 230 acres in Consolidated Lease 16M/54, 200 acres in 26M/49, and 450 acres in 72M/56. The Fingal Colliery is situated in the north-east portion of the leased area.

Adjoining Yeates' leases to the north-east is the Cornwall Coal Company's Consolidated Lease 58M/57 of 1377 acres. Their Duncan mine is in the western part of the lease, near the Fingal Colliery.

To the east of the Cornwall lease are E. Barber's leases 36M/52 of 603 acres, and 114M/55 of 640 acres. Barber's mine is sited in the north-west portion of the leases.

Access to the mines is by gravel roads from the main Fingal—St. Mary's road. The Duncan and Fingal mines are 3.2 miles from the Fingal Railway Station, and Barber's mine is 5.7 miles from it. The Tasmanian Board Mills private road runs through Barber's leases, and it is this road that gives access to the mine.

GENERAL GEOLOGY

The coal measures are in the Felspathic Sandstone of the Triassic System. The hills of the area are of Jurassic dolerite which appears to be transgressive with regard to the sedimentary rocks. Dolerite scree covers most of the sandstone in the vicinity of the hills, and all the coal outcrops found have been in creek beds. The regional dip of the felspathic sandstones and their included coal measures is 3° to 5° to the south.

Apart from the small faults of one foot to five foot throw encountered in the coal mines, faulting has been noted in the mines in the vicinity of the dolerite. In several places on the field the contact between the dolerite and the sandstone appears to be a faulted one (see plan).

COAL SEAMS

In each of the three collieries operations were started by a tunnel from the outcrop of a coal seam in a creek bed, and development has been confined to lateral work on that seam. The Fingal and Duncan mines have been operating on the same seam, but until now little attempt has been made to correlate this seam with other

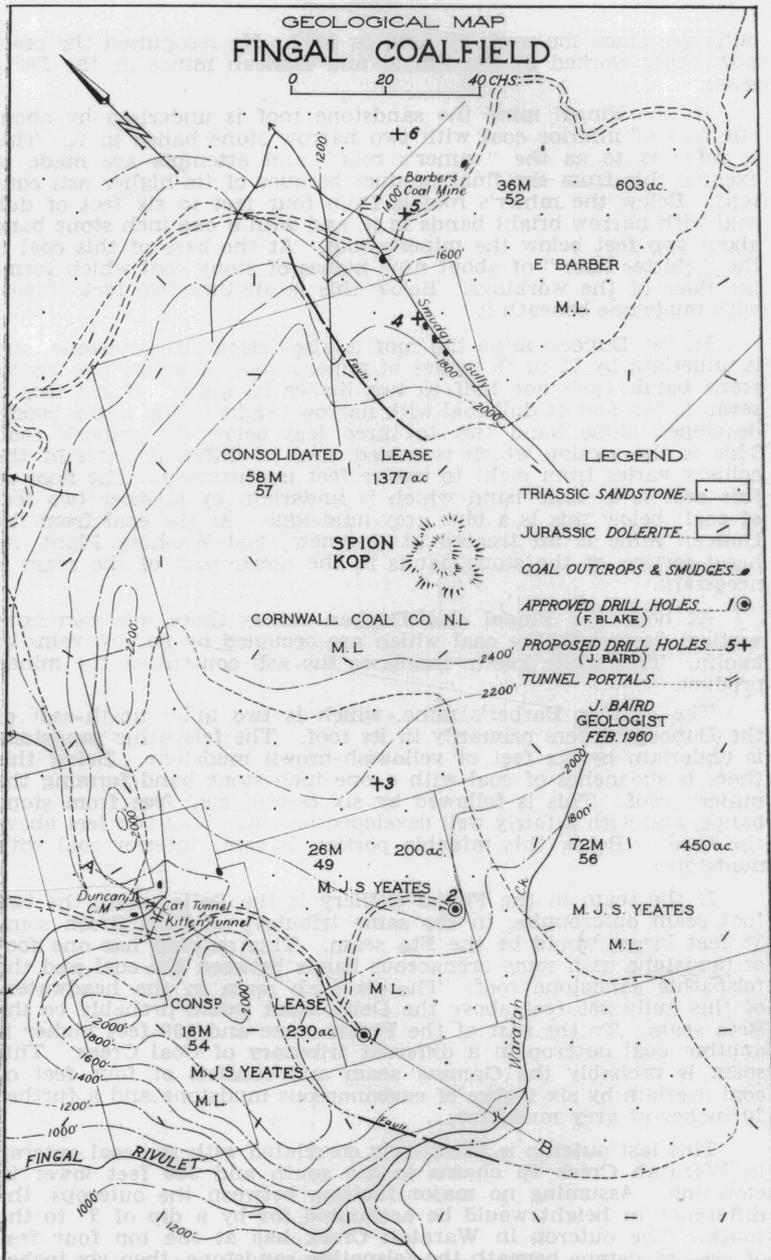
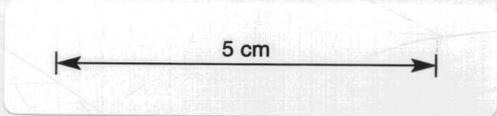


FIGURE 47.



outcrops, since the work of Keid in 1922. He recognised the seam now being worked in the Fingal and Duncan mines as the Delta seam.

In the Fingal mine the sandstone roof is underlain by about one foot of inferior coal with two narrow stone bands in it. This is referred to as the "miner's roof" and attempts are made to exclude this from the final product because of its higher ash content. Below the miner's roof is from four feet to six feet of dull coal with narrow bright bands in it, and with a one inch stone band about two feet below the miner's roof. At the base of this coal is the "chitter floor" of about nine inches of stony coal which forms the floor of the workings. Below this is another two feet of coal with mudstone beneath it.

In the Duncan mine the roof is also felspathic sandstone, and is underlain by 12 to 15 inches of miner's roof including two brown stone bands each one half to two inches in width. Below this is seven to ten feet of dull coal with narrow bright bands, and a poorly developed stone band two to three feet below the miner's roof. This is the section which is mined, and in different parts of the colliery varies from eight to twelve feet in thickness. The floor of this coal is a stone band which is underlain by another two feet of coal; below this is a blue grey mudstone. As the coal from the Duncan mine is all treated at the new Coal Washing Plant, no hand-sorting of the stone bands in the upper part of the seam is necessary.

At both the Fingal and Duncan mines there are numerous vertical fissures in the coal which are occupied by narrow veins of kaolin. This white kaolin increases the ash content of the mined product.

The coal at Barber's mine, which is two miles north-east of the Duncan, differs primarily in its roof. The felspathic sandstone is underlain by six feet of yellowish-brown mudstone. Below this there is six inches of coal with a one inch stone band forming the miner's roof. This is followed by six feet of coal free from stone bands, and with a fairly well developed parting about two feet above the base. Below this minable portion is some inferior coal with mudstone.

If the seam in the Fingal Colliery is the Delta seam, the two foot seam outcropping in the same tributary of Coal Creek some 35 feet lower, would be the Eta seam. This outcrop has one foot of mudstone with some arenaceous bands between the coal and the felspathic sandstone roof. The six inch seam in the headwaters of this gully 250 feet above the Delta seam would probably be the Beta seam. To the east of the Fingal mine and 100 feet higher is another coal outcrop in a different tributary of Coal Creek. This seam is probably the Gamma seam and consists of four feet of coal overlain by six inches of carbonaceous mudstone and a further 20 inches of grey mudstone.

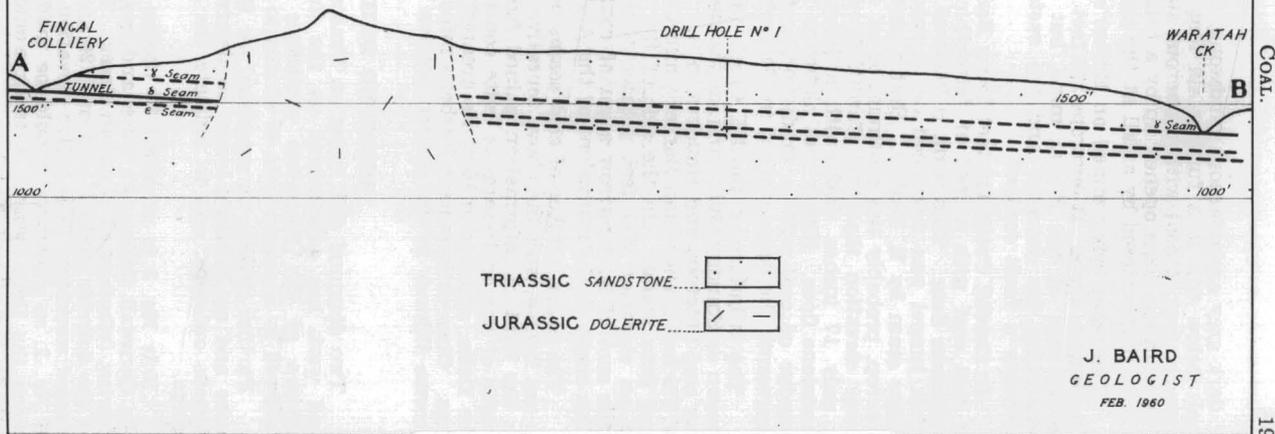
This last outcrop is tentatively correlated with the coal outcrop in Waratah Creek 95 chains to the south and 300 feet lower in elevation. Assuming no major faulting between the outcrops, the difference in height would be accounted for by a dip of 3° to the south. The outcrop in Waratah Creek has at the top four feet of grey mudstone beneath the felspathic sandstone, then six inches

FINGAL COALFIELD
SECTION AB

DIRECTION OF SECTION 166°M.

SCALE
0 1000 FT

FIGURE 48.



5 cm

of dark grey carbonaceous mudstone, followed by three feet of dull coal; below this is a further six feet of greyish-brown mudstone, then six feet of coal with numerous stone bands. The top part of this seam has been opened up by a tunnel about 30 feet long, which is now partly closed by a fall at the portal.

The seam being mined on Barber's leases is also believed to be the Gamma seam. It outcrops 230 feet lower than the Gamma seam to the east of the Fingal mine, but there is a mass of dolerite separating the outcrops and the eastern edge of this dolerite is probably a fault contact.

In Cardiff Creek 110 feet below Barber's mine is a six foot seam of dull coal with a roof of felspathic sandstone and a blue-grey mudstone floor. This seam is believed to be the Delta seam, and a short tunnel was developed on it before operations began on the upper seam by E. Barber. Half a mile north-east is another coal outcrop, probably the continuation of the Delta seam, at a 30 foot lower elevation than the Cardiff Creek exposure. The coal here is only 17 inches thick with a felspathic sandstone roof and a mudstone floor. Ninety feet higher in the same creek bed there is a smudge of coal with a mudstone roof, and this smudge probably represents the seam worked in Barber's mine.

The tributary of Cardiff Creek which has permanent water is known as Smudgy Gully, and, as the name implies, there are numerous coal outcrops and smudges in it. These extend to an elevation of 370 feet higher than Barber's mine, and should include the Alpha and Beta seams. On the side of the Tasmanian Board Mills road at an elevation 300 feet greater than Barber's mine and half a mile east of it, a narrow seam of coal outcrops in a road cutting. This could be the equivalent of the Alpha seam.

The exact number of coal seams occurring in the Fingal Range is not known, and the above tentative correlation must be reviewed in the light of information gained from drill cores. Variations in width of the coal seams is quite considerable, and the main seam, the Delta, appears to have its greatest width in the Duncan workings. Observations near Barber's mine suggest that the coal seams become thinner in the eastern portion of his leases.

DIAMOND DRILLING

Two diamond drill holes on Yeates' leases have been approved, and work has commenced on the first of these in the western portion of the felspathic sandstone sub-outcrop. This will be followed by a deeper hole 43 chains to the north-east (Blake 1959).

Further drilling is suggested on the Cornwall Coal Company's lease and on Barber's leases to determine the relationship of the various outcrops, and to indicate the possible coal reserves of the range.

Hole No. 3 is proposed 23 chains upstream of Hole No. 2, on the Cornwall Company's lease, and near the headwaters of a south-flowing tributary of Waratah Creek. This hole is within ten chains of the dolerite contact, and over 20 chains from the nearest underground workings. The collar elevation is 120 feet higher than that of No. 2, so allowance should be made for 830 feet of drilling to reach the Delta seam. A track would have to be cut from No. 2 hole to the site of No. 3.

The other site on the Cornwall Coal Company's lease is on the west bank of Smudgy Gully, on the opposite side of Spion Kop to Hole No. 3. The site is accessible by a roughly bulldozed track from the Tasmanian Board Mill's road near Barber's turn-off. This site marked as No. 4 on the plan, is at an elevation of 1700 feet, so a 500 foot hole is proposed to obtain core from the seams outcropping on Barber's leases.

Hole 5 is proposed on Barber's lease 36M/52, by the side of the Tasmanian Board Mill's road where it crosses Cardiff Creek. This site is 20 chains from Hole No. 4 and 15 chains south of Barber's Tunnel. The proposed depth is 400 feet.

The other hole proposed is 16 chains east of Barber's mine and twenty chains from No. 5. This site is numbered 6 on the plan. It would need to be only 300 feet deep to intersect the coal seams outcropping in Cardiff Creek, but a track would need to be cut from Barber's mine to the site. This hole is on Barber's Application for Lease 8M/58 of 320 acres.

In all, four holes are proposed, in addition to the two already approved. The four new holes total 2030 feet of drilling.

REFERENCES.

- BLAKE, F., 1959.—Potential Coal Bearing Area at Fingal Colliery. *Tas. Dept. Mines Report* (unpublished).
 HUGHES, T. D., 1958.—Barber's Colliery. *Tas. Dept. Mines Technical Reports* No. 3, 89-91.
 KEID, H. G. W., 1922.—Coal Resources of Tasmania *Tas. Geol. Sur. Min. Res.* No. 7, 45-52.

APPENDIX — GEOLOGICAL LOG

Fingal Colliery No. 1 Drill Hole

Footage		Recovery	Log
From	To		
0'	— 88'		No core recovered.
88'	— 92'	3'9"	Fragments of sandstone, coal and mudstone.
92'	— 98'	5'4"	Light grey felspathic sandstone.
98'	— 104'	2'6"	Light grey felspathic sandstone with a few narrow carbonaceous bands and a little grey mudstone.
104'	— 113'9"	8'10"	Light grey mudstone with a coal band from 104' 6" to 105' and carbonaceous mudstone from 112'6" to 113'9".
113'9"	— 115'8"	1'10"	Coal seam, with stony band at 114'9".
115'8"	— 124'	5'	Carbonaceous mudstone 115'8" to 116'4". Grey mudstone 116'4" to 122'. Felspathic sandstone 122' to 124'.
124'	— 135'	7'6" }	Light grey felspathic sandstone. Hole in progress.
135'	— 141'	5'9" }	