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1986/04. The Llandaff coalfield

C.A. Bacon

Abstract

The Llandaff coalfield is located on the slopes of Buster Ridge, south-west of Bicheno. A number of prospecting adits and shafts have been sunk in this coalfield although no mining venture eventuated. The coal is of Triassic age. Because of the thin nature of the seams and the small lateral extent of the coalfield, the area is of minimal interest for future exploration.

LOCATION AND ACCESS

The Llandaff coalfield is located around the southern and eastern slopes of Buster Ridge, south-west of Bicheno. The township of Llandaff [FP007558] lies on a flat plain, between the scarp of the central Eastern Highlands (of which Buster Ridge is a part) to the west and low granite hills adjoining the coastline to the east. Most of the outcrops of coal known from this coalfield have been found in or around Steep (Lynes) Creek. However, some outcrops have been recorded on the northern flanks of Buster Ridge and on the flat valley floor of the Apsley River in the area around the confluence of Blindburn Creek with the Apsley River. The area of the Llandaff coalfield is traversed by the Tasman Highway and many secondary farm and forestry roads.

GENERAL GEOLOGY

The area has been examined by Twelvetrees (1902), Hills *et al.* (1922), Leaman (1978) and Bacon (1979).

The coal seams which are of interest in the Llandaff coalfield form a minor component of the Late Triassic lithic sandstone sequence, which forms the uppermost interval of the Upper Parmeener Super-Group. The sequence is composed dominantly of lithic sandstone with minor interbedded mudstone, siltstone, claystone, rare tuff and occasional coal seams.

Stratigraphically, the coal-bearing sequence overlies glacio-marine sequences of the Lower Parmeener Super-Group in the Llandaff area. These marine rocks disconformably overlie a basement of Devonian granite.

Dolerite intruded the sedimentary pile during the Jurassic and now caps most of the plateau country of the central Eastern Highlands (including Buster Ridge). Dolerite talus thickly covers the steep slopes of Buster Ridge while the flat-lying country around Llandaff (the wide valley of the Apsley River) is covered by sand and alluvium.

Drilling in the eastern part of the coalfield has shown that the lithic sandstone sequence rests directly on the granitic basement.

A large north-trending fault exists west of Llandaff. The eastern fault block is composed of granite, while granite abuts dolerite from FP055656 to FP060622. Coal-bearing sediments overlain by alluvium are faulted against the granite from FP060622 to FP040550. A more detailed account of the geology is given in Bacon (1979).

PREVIOUS MINING HISTORY

No coal mining has taken place in the Llandaff coalfield, although various outcrops of coal have been opened up by adits during the course of intermittent prospecting activities.

Coal was found in the Llandaff coalfield in 1843 by two ticket-of-leave convicts, Jesse and Isaac Garland, who reported finding coal on Schouten Island, south of the Douglas River, and near the Apsley River (CSO 22/84/1807 p. 142). The two brothers concentrated on the Schouten Island coal and the Apsley River outcrop was left undisturbed.

Twelvetrees (1902) described a number of outcrops of coal in Pikes Creek (a tributary of Lynes Creek) and Steep Creek (Lynes Creek), which run in a south-easterly direction off Buster Ridge onto the flats surrounding the Llandaff township. The seams exposed were all less than 1.0 m thick.

The Morning Star Company drove an adit into an outcrop of coal on the south bank of Steep (Lynes) Creek in 1898 for a distance of six metres. An adit was also driven on the north bank of Steep Creek and a shaft 3.6-3.9 m deep (known as Ramsay's Shaft) was sunk nearby. Another shaft (Pikes Shaft), sunk near the northern boundary of the township of Llandaff, was examined by Twelvetrees (1902).

In Pikes Creek a seam of coal 1.0 m thick was opened up by an adit 3.9 m long. In a gully leading into Steep (Lynes) Creek a seam of coal was worked for a short time by a Mr Carhill, and a small quantity of coal was sent to Adelaide.

Whilst most of the seams in the area are less than one metre thick, at one outcrop, high up in Steep (Lynes) Creek, a heavily banded seam 4.0 m thick was noted by Twelvetrees (1902).

Twelvetrees (1902) also examined an outcrop of coal in Marshalls Creek, on the northern slope of Buster Ridge (Marshalls Creek is a tributary of the Apsley River).

The Mt John Coal Mining Company had driven 'a few short tunnels' on outcrops of coal in a lease 3.2 km north of Llandaff at the time of a visit by A.M. Reid in 1921. No further mining activity occurred in this area.

COAL QUALITY

There are few analyses available of coal from the Llandaff coalfield.

		1	2	3
Moisture	(%)	5.80		2.9
Ash	(%)	29.20	38.4	22.5
VCM	(%)	23.42		28.4
FC	(%)	41.58		46.2
Total sulphur	(%)	0.44		0.47
Specific energy	(%)			24.54

1. Sample of coal from a lease 3.2 km north of Llandaff (Hills *et al.*, 1922).
2. Raw coal, sample GY8/1 (1978), seam 2.20 m thick.
3. Sample GY8/1; F 1.70 fraction; yield 61.5% at F 1.70.

RECENT EXPLORATION

Three diamond-drill holes were put down by the Department of Mines in the 1890s. The logs of these three holes (DOM Llandaff 1, 2, 3) are given in Hills *et al.* (1922).

The Shell Company of Australia drilled one hole (GY 8) near Llandaff in 1978. Two holes were drilled in 1978 by the Department of Mines as control points for an extensive gravity survey of the East Coast coalfields (DOM Bicheno 4, 3A). Additional holes for the gravity survey were drilled at Apslawn (Bicheno 7) and Cranbrook (Bicheno 8), south of the Llandaff coalfield. The locations of these holes are given in Appendix 1.

The area has been mapped by Bacon (1979) and included in an extensive gravity survey of the central Eastern Highlands (Leaman and Richardson, 1981).

FUTURE POTENTIAL

Whilst parts of the Llandaff coalfield have not been fully investigated by drilling, the potential of the Llandaff coalfield for future exploration is limited. The known outcrops and intersections of coal show the seams to be thin and discontinuous. While the analytical data is also sparse, the samples so far analysed from this coalfield have more ash than the usual East Coast coals.

REFERENCES

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RECORDS HELD IN STATE ARCHIVES

CSO - Records of Colonial Secretary's Office.

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APPENDIX 1

Approximate AMG co-ordinates of drill holes in the Llandaff coalfield

DEPARTMENT OF MINES

1890 Drilling

Hole	*AMG reference*
1	EP995564
2	FP003565
3	FP005584

1978 Drilling

	Hole	*AMG reference*
Bicheno	3A	EP981618
	4	EP993636
	7	EP963546
	8	EP894497

SHELL COMPANY OF AUSTRALIA - 1978 DRILLING

	Hole	*AMG reference*
Gray	8	FP001593

GEOLOGICAL SKETCH MAP

LLANDAFF COALFIELD

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Contour interval 20m

0 1 2 km

QUATERNARY

- Sand and gravel
- Dolerite boulder talus

TERTIARY

- Gravel

JURASSIC

- Dolerite

TRIASSIC

- Lithic sandstone, mudstone, coal
- Quartz sandstone

DEVONIAN

- Granite

- Geological boundary: position approximate
- Fault: position approximate, downthrown side indicated
- Adit
- Shaft
- Borehole: Dept. of Mines, 1978 drilling
- Major road
- Vehicular track