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1986/19. Brown coal deposits in Tasmania

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Abstract

Occurrences of brown coal or lignite in unconsolidated Tertiary sediments are widespread across Tasmania. Most of these occurrences are extremely small, localised features and are of no economic importance.

INTRODUCTION

The first discovery of brown coal in Tasmania was made by Captain James Kelly in 1815, on the shores of Macquarie Harbour. The first mining venture in Tasmania was an attempt by the Colonial Government to exploit the brown coal at Coal Head on Macquarie Harbour, using convict labour. The exercise was brief and unsuccessful.

Brown coal was subsequently found in many places in Tasmania. The largest deposit is at Rosevale, near Westbury. This area has been recently evaluated as a potential source of fuel for a coal-fired power station.

ROSEVALE (WESTBURY)

A shaft was sunk near Hagley in 1919 by a Mr Gatenby and brown coal was mined on a small scale from this shaft for two years. An adit was driven to intersect the shaft in 1920. The brown coal was calcined (burnt to ashes) and used as a crop fertiliser. Extraction of the coal ceased in 1921.

In 1981-1982 an exploration programme was conducted in the Rosevale (Westbury) area by AAR Limited in partnership with CSR to delineate the occurrence of brown coal in the area. As a result of this and subsequent exploration, CSR have defined three discrete deposits of lignite near Rosevale with combined (measured and indicated) reserves of 118 million tonnes.

NORTH-WEST COAST

Brown coal deposits have been recorded from Myrtle Hill near Irishtown, 8 km south of Smithton, from where Blake (1940) briefly described a seam one metre thick overlain by basalt 30 m thick. At Edith Creek (also in the Irishtown area) two seams 0.6-1.0 m thick separated by 3.3 m of conglomerate are overlain by 30-40 m of basalt.

Various other isolated small outcrops of brown coal are known from the north-western part of Tasmania.

MACQUARIE HARBOUR

Brown coal was noted on the northern shore of Macquarie Harbour in 1815 by Captain James Kelly; these deposits were visited by D. McCarthy in 1816 (*Hobart Town Gazette*, 15 June 1816). Subsequently thin seams of brown coal were found exposed along the greater parts of the northern and eastern shores of Macquarie Harbour from Lettes Bay to Farm Cove and for several miles south of Birchs Inlet.

A report by G.W. Evans, Deputy Surveyor to Lt Governor Sorell, dated 9 February 1822 stated "coals can be procured at a place called

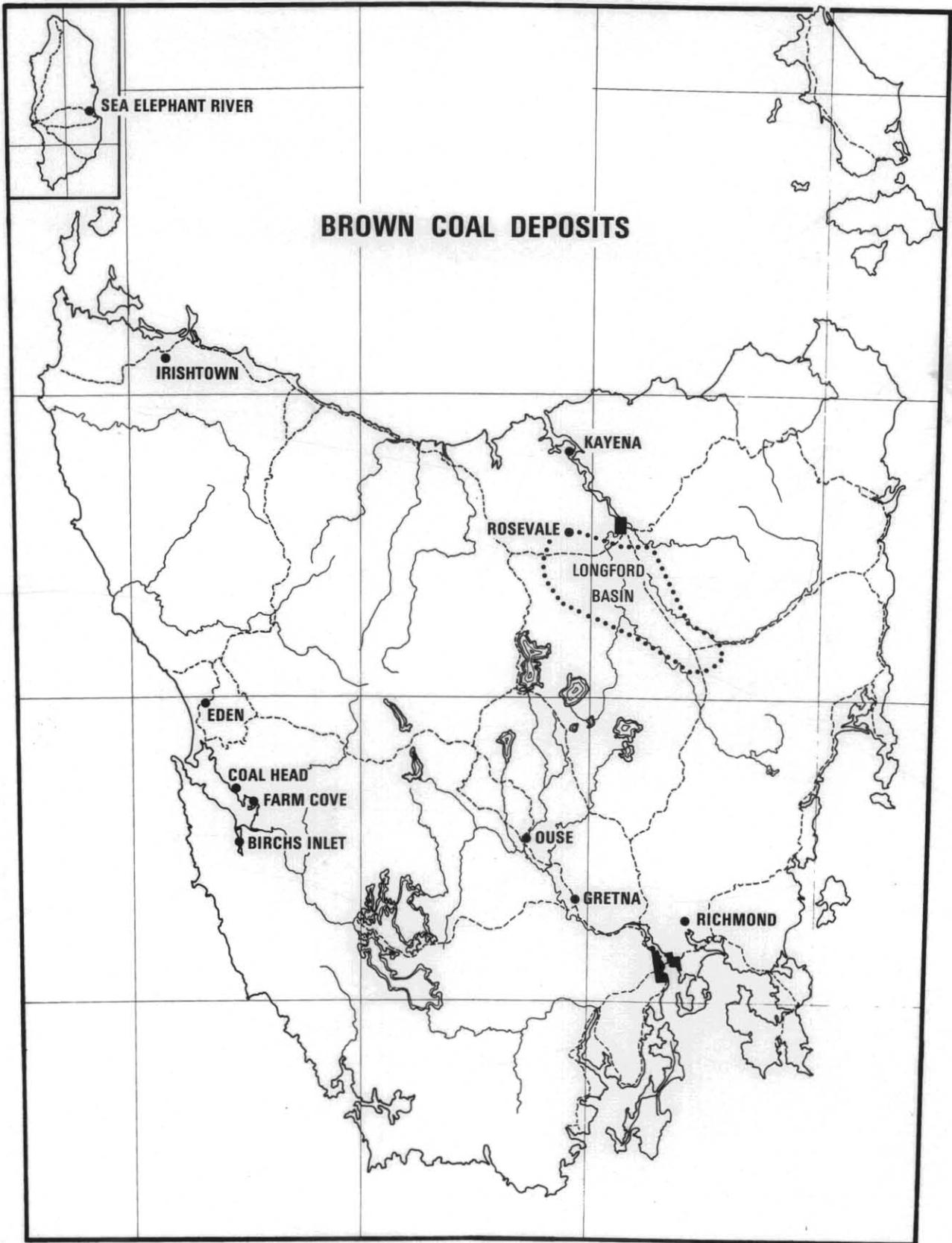


Figure 1. Location of brown coal deposits

Coal Head and along the shore some distance south east of it" (*Hobart Town Gazette*, 9 February 1822).

Confessions of the convict Alexander Pearce (Sprod, 1977), who escaped from Macquarie Harbour on 20 September 1822, contain references to coal mining at Coal Head.

In tracing the route taken by Pearce and his colleagues, Sprod (1977) writes: "The party which included Pearce met no difficulties in making their initial break by seizing a boat ... from Logan's work gang at Kelly's Basin at the eastern end of Macquarie Harbour. From the basin they rowed along the northern shore to the coal mines at Coal Head, midway between their starting point and the open sea".

The initial mining attempts were apparently short lived. A despatch from Colonel Sorell to Under Secretary Horton, dated 29 November 1824, reads in part: "At the penal settlement of Macquarie Harbour, where the indications of coal were so strong as to induce the Deputy Surveyor General [Evans] to report its existence there, the want of professional research had deprived the local government of the means of working it" (*Historical Records of Australia* 3(4):583).

The brown coal occurs as thin beds, 125-140 mm thick, in Tertiary sediments comprising lightly consolidated sand, clay, shale and mud. The coaly bands are comprised of brown coal and carbonaceous shale with occasional black lignitised wood lenses. On the coast, the coal is commonly overlain by 15-30 m of sediments and the thickness of overburden increases inland (Blake, 1939).

Leases were held in the area of Farm Cove from 1891 to 1903 by a number of individuals and syndicates, although no serious mining eventuated. Leases were also held at Coal Head (1888-1892) and near Eden (1902). The Government drilled two holes for the Eden Coal Company in 1902-1903 (Twelvetrees, 1902a, 1902b, 1903a) to examine an outcrop of brown coal discovered near Eden by woodcutters, while dragging piles for the Strahan wharf to the railway (Twelvetrees, 1901). A third government bore was put down at Farm Cove (Twelvetrees, 1903b).

In 1981 C.R.A. Exploration Pty Ltd drilled five chip holes in the Strahan area, and concluded that the potential for discovery of a major lignite horizon in the area was minimal (Clementson, 1981).

KING ISLAND

Brown coal was reported on King Island in 1930 by Mr R. Hooper who struck a thin seam while sinking a well on his property in the Sea Elephant River district. Carey (1946) documents a number of brown coal and peat deposits on King Island, listing the occurrence of:

- (a) thin seams of brown coal of Miocene age;
- (b) immature lignite of Quaternary age under sand dunes;
- (c) peat swamps belonging to the present cycle of sedimentation.

LONGFORD BASIN

One of the striking features of the Tertiary sediments in the Longford Basin is the presence of lignite fragments throughout (Matthews, 1983).

Thin seams of lignite were intersected in drilling for black coal at Belmont, near Longford, and at Carr Villa late last century. The thickest seam intersected was 1.2 m at 244 m depth. Additional thin seams, approximately one metre thick, are known to occur at various localities in the Longford and Launceston Basins, such as at Rosevale, Legana, east of St Leonards, and at Breadalbane. In some parts of the Longford Basin, particularly in the Evandale area, wood fragments have been replaced by iron oxide and leaf impressions are common in iron oxide-rich boulders (Matthews, 1983).

Nye (1929) examined an outcrop of brown coal cropping out in the Rose Rivulet at Harland Rise, near Evandale.

TAMAR VALLEY

Brown coal is known to exist in various localities throughout the Tamar Valley. A small adit has been driven in on an outcrop near Kayena [DQ912395] on the west bank of the River Tamar.

DERWENT VALLEY

Occurrences of brown coal have been recorded from near Ouse and around Glenora in the Derwent Valley.

COAL QUALITY

Analyses of brown coal from various localities are listed below:

	1	2	3	4	5	6	7
Moisture (%)	20.8	5.84	4.26	7.5	9.9	22.8	13.0
VCM (%)	33.45	30.24	22.20	29.82	51.0	57.7	34.5
Fixed carbon (%)	33.5	28.22	15.60	15.98	29.9	12.0	33.9
Ash (%)	12.25	35.70	57.94	46.70	9.2	7.5	18.6
Sulphur (%)	-	1.96	0.42	0.36	3.61	0.34	0.62
Specific energy (MJ/kg)	-					19.72	18.54

1. Lettes Bay, Macquarie Harbour (Blake, 1939)
- 2, 3. Southern end of Phillips Island, Macquarie Harbour (Blake, 1939)
4. Myrtle Hill, north-western Tasmania (Blake, 1940)
5. Muddy Creek, West Tamar, northern Tasmania (Blake, 1940)
6. Richmond area, southern Tasmania (Leaman, 1971)
7. Sea Elephant River area, King Island (Carey, 1946)

FUTURE POTENTIAL

The Rosevale brown coal deposit is of interest for future exploration and is currently held under exploration licence.

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