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TASMANIA
DEVELOPMENT
AND RESOURCES

Mineral Resources Tasmania
REPORT 1993/30

Some Tasmanian coal statistics (1993)

by C. A. Bacon

INTRODUCTION

The consumption of coal by Tasmanian industry doubled during the ten years from 1980/81 and local coal is now used by a number of Tasmanian secondary industry as a boiler fuel. The largest users are the paper factories and the cement works, which together use around three-quarters of the Tasmanian coal produced.

Statistics relating to Tasmanian coal consumption, coal production and employment are given in Tables 1, 2 and 3, and are shown graphically in Figures 1 and 2, together with an account of coal reserves within the State. These statistics are taken from figures collated by the NSW Joint Coal Board, published in yearbooks *Black Coal in Australia* to 1987/88 (wherein figures are given on a financial year basis) and more recently in *Australian Black Coal Statistics*, which gives figures on a calendar year basis; and from figures collected by Mineral Resources Tasmania. Figures from various sources can differ, and users should be aware of the basis of calculation: financial or calendar year, and even whether the end of the year is deemed to be at the end of, or part way through, a production fortnight.

The statistics kept by Mineral Resources Tasmania are compiled from quarterly production returns for each mining lease. On occasions the sum of the four quarterly returns (which is the figure tabled in the annual report) does not agree with the figures produced by the Joint Coal Board of New South Wales or, lamentably, with figures given in the Annual Report of the Chief Inspector of Mines. I am unable to explain these differences.

TABLE 1

Coal Production ('000 t), 1980 to current

Year	Raw Coal (JCB Stats)			Saleable Coal (JCB Stats)				Raw coal (MRT prod. stats)			MRT Ann Rep.	Raw Coal (MRT Inspectors Rep)		
	Total	U/G	O/C	Total	U/G	O/C	Stocks#	Total	U/G	O/C	Total	Total	U/G	O/C
1980/81	302			208			57				304			
1981/82	390			249			42				395			
1982/83	557			329			87				548			
1983/84	453			280			92				453			
1984/85	491			321			95				496			
1985/86	502	489	13	310	305	5	60				509			
1986/87	617	583	34	394	373	21	92				622			
1987/88	600	544	56	380	343	37	110				608			
1988/89	645	553	92	407	344	63					632			
1989	571	548	23	312	297	15	95							
1989/90	596	548	48	356	314	42		569			569	597	574	23
1990	628	519	109	390	310	80	98							
1990/91	585	493	92	350	287	63		546	497	49	560			
1991	536	480	56	324	280	44	88							
1991/92	542	484	58	342	288	54		544	484	60	486	555	480	75
1992	518	459	59	340	281	59	102							
1992/93								495	408	87	495	439	371	68

\# 1980/81 to 1988/89 Closing Stocks as at June, 1989 to 1992 as at December

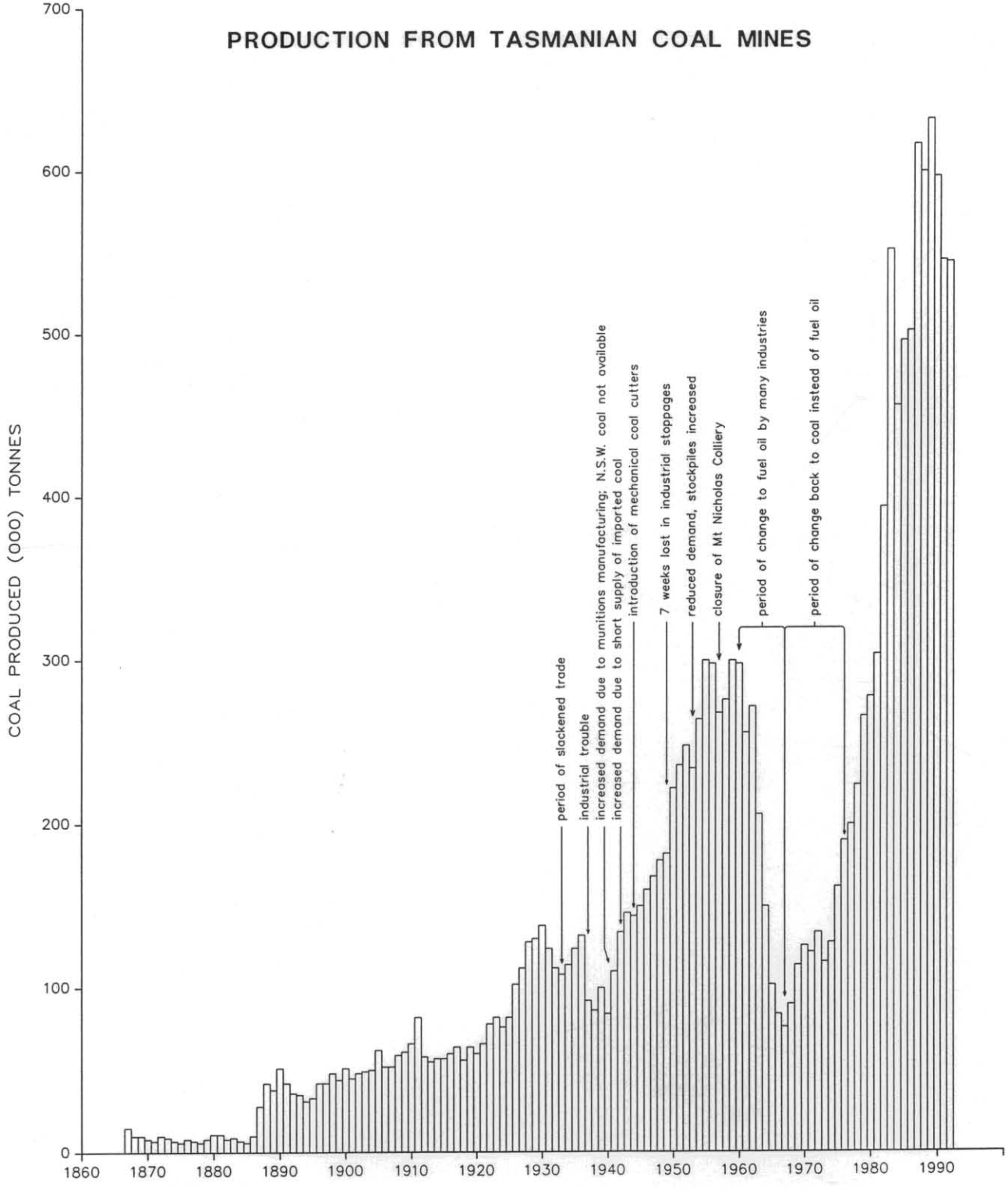
PRODUCTION FROM TASMANIAN COAL MINES
COAL PRODUCED (000) TONNES
700
600
500
400
300
200
100
0
1860
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
period of slackened trade
industrial trouble
increased demand due to munitions manufacturing; N.S.W. coal not available
increased demand due to short supply of imported coal
introduction of mechanical coal cutters
7 weeks lost in industrial stoppages
reduced demand, stockpiles increased
closure of Mt Nicholas Colliery
period of change to fuel oil by many industries
period of change back to coal instead of fuel oil

Figure 1

5 cm

TASMANIAN COAL PRODUCTION 1980–81 TO 1991–92

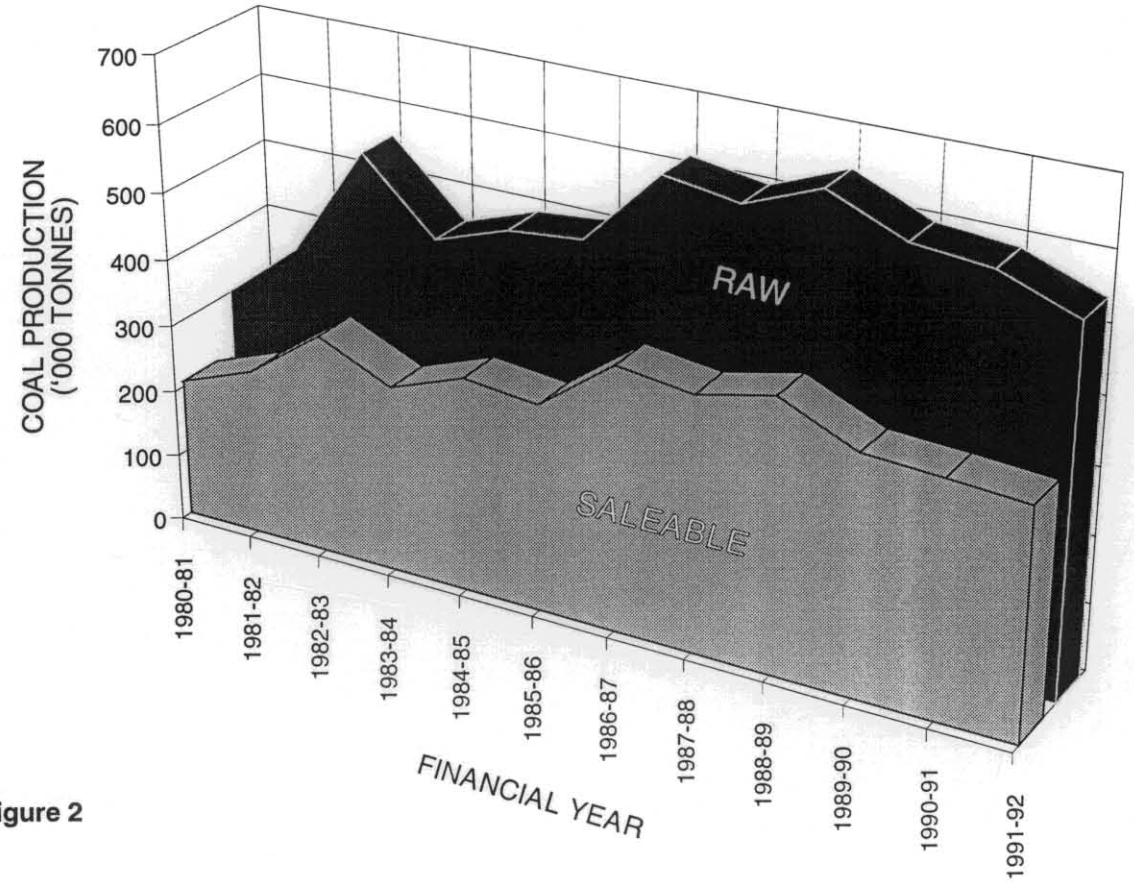

Figure 2

RAW COAL PRODUCTION — CUMULATIVE TOTAL

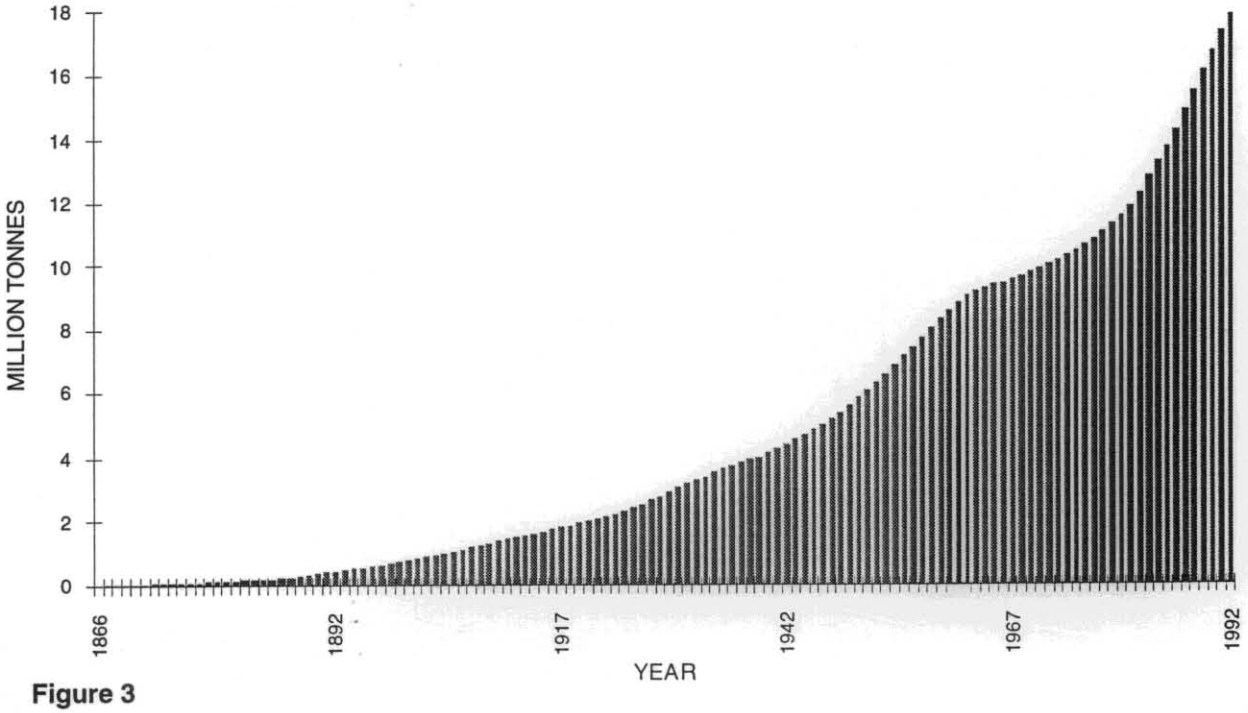

Figure 3

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TABLE 2

Coal consumption ('000 t)

Year	Cement Works	Paper Mills	General Industry	TOTAL	NSW coal used	Local coal used#
1980/81	71	93	43	207	10	197
1981/82	94	100	73	267	4	263
1982/83	77	172	75	324	13	311
1983/84	49	195	61	305	12	293
1984/85	78	200	67	345	26	319
1985/86	87	203	101	391	46	345
1986/87	67	219	99	385	26	359
1987/88	71	218	119	408	47	361
1988/89	81	235	132	448	60	388
1989*	84	228	126	438	63	375
1990*	92	218	137	447	60	387
1991*	78	196	128	402	69	333
1992*	67	183	127	377	51	326

1980/81 to 1988/89 from NSW Joint Coal Board financial year statistics

* calendar year JCB statistics

\# calculated from total coal used less imported coal

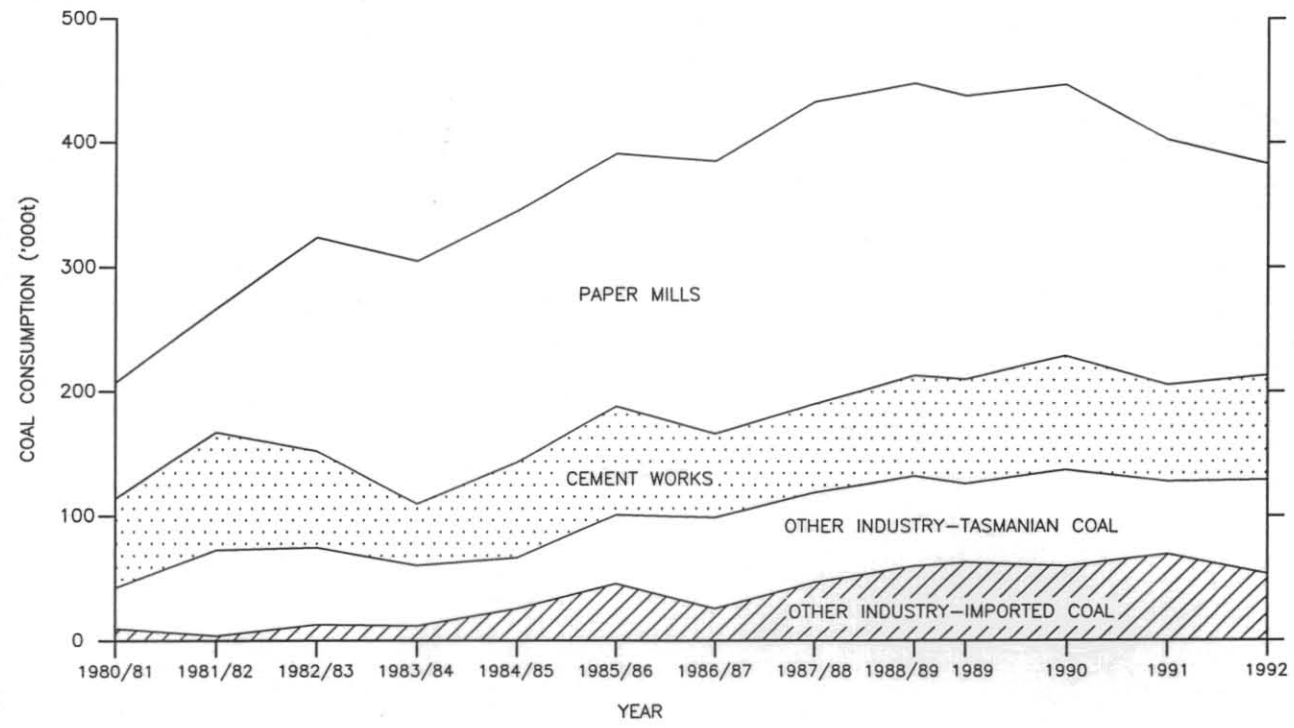

Figure 4

Consumption of coal by industry type

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TABLE 3

Employment (persons)

	JCB statistics as at June			DOM statistics as at June	JCB statistics as at December		
	Total	Underground	Open cut	Total	Total	Underground	Open cut
1980	113	113			123	123	
1981	135	135		135	141	141	
1982	141	141		141	141	141	
1983	140	140		140	138	138	
1984	138	138		138	143	143	
1985	143	143		143	139	139	
1986	155	143	12	155	154	150	4
1987	150	150	-	150	150	130	20
1988	146	135	11	146	139	130	9
1989	133	130	3	134	139	131	8
1990	153	126	27	136	150	132	18
1991	150	132	18	146	151	134	17
1992	155	139	16	149	146	129	17
1993				130			

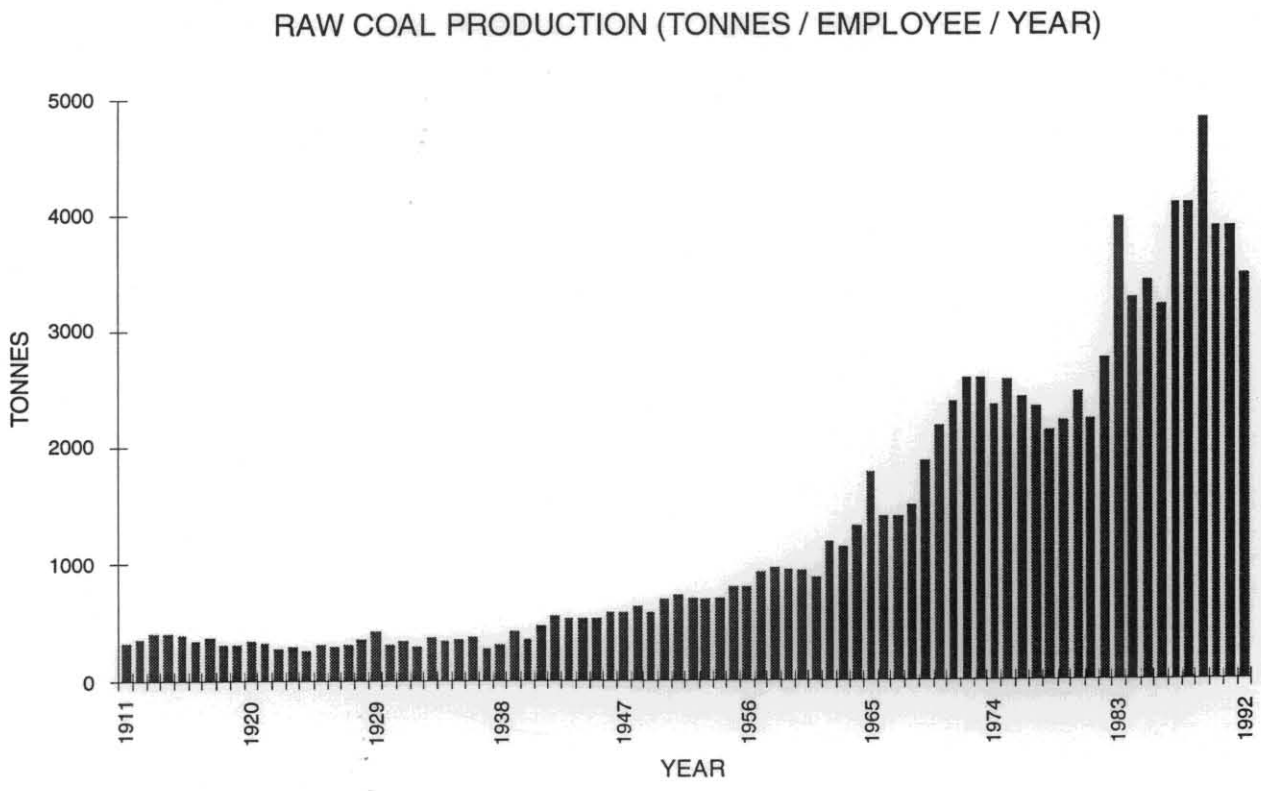

Figure 5

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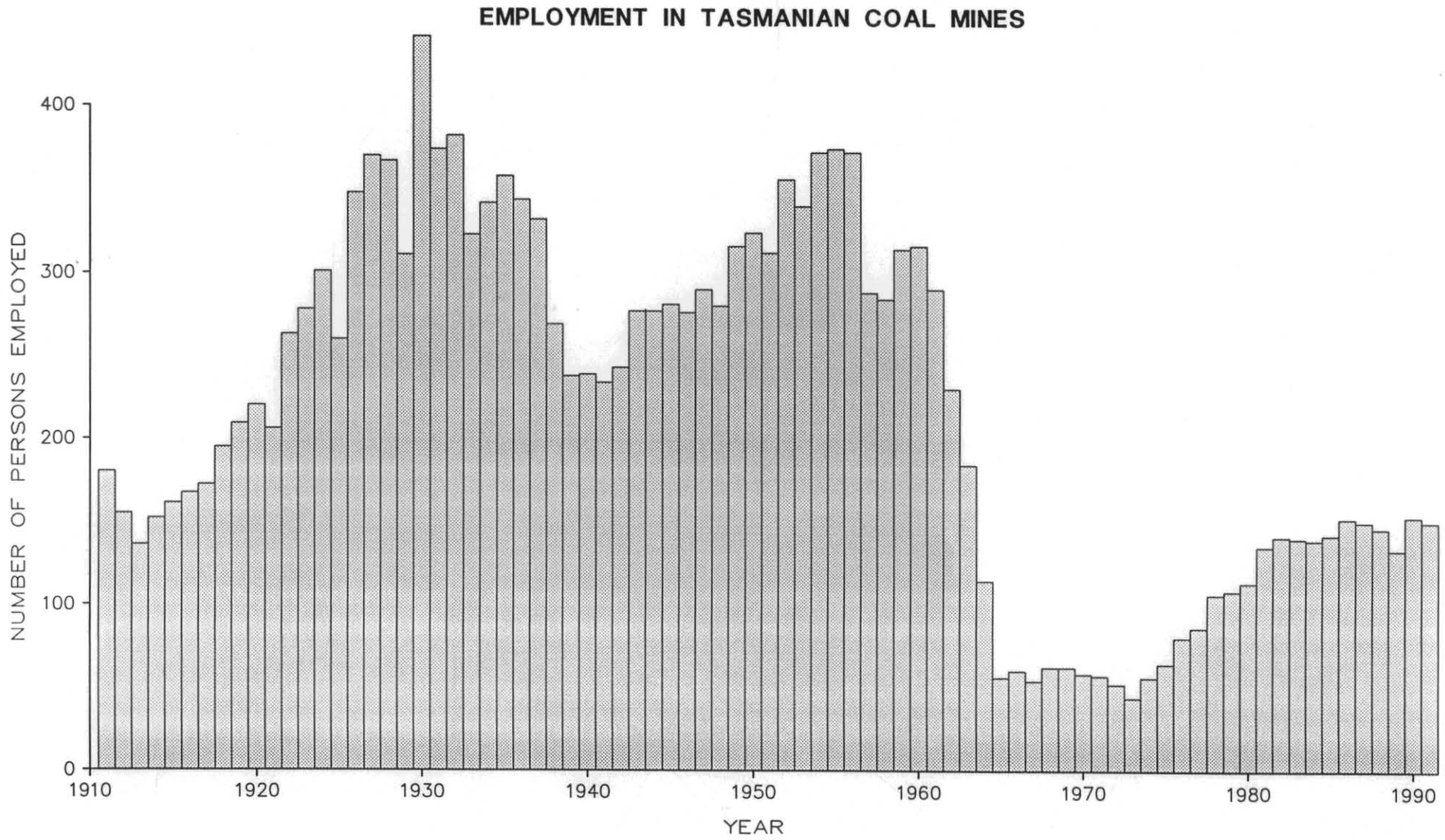

Figure 4

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COAL RESERVES

In reporting or calculating coal reserves the Department recommends adherence to Australian Standard 2519-1982: *Standing Committee on Coalfield Geology of NSW: Codes for calculating and reporting coal reserves (fourth edition).*

A brief summary of the reserve categories of AS2519-1982 is as follows:–

MEASURED RESERVES are those for which the density of observation points is sufficient to give control on quality, quantity, thickness, depth and other relevant conditions, and to allow for both a reliable estimate of the reserves and the planning of their extraction. The standard suggests that the observation points should be spaced no further than one kilometre apart, and in many instances much closer spacing is needed.

INDICATED RESERVES are those for which the density of observation points is sufficient to allow for a realistic estimate of reserves and for which there is a reasonable expectation that the reserves could be raised to the measured category with further information. Observation points should be spaced no further than two kilometres apart.

INFERRED RESERVES are those for which there is a poor cover of information so that only an uncertain estimate of the reserves can be made. Further information will either raise these reserves to a higher category or show that part or all of them does not exist. Quantitative values are not assigned to inferred reserves, other than to indicate the relative size of the deposit within the following ranges:

very large	>10,000 million tonnes
large	100 to 10,000 million tonnes
small	20 to 100 million tonnes
very small	<20 million tonnes

In view of the fact that a large number of extremely small coal deposits occur in Tasmania, Mineral Resources Tasmania has adopted a modification of the inferred reserve category. Indications are made in the table where extremely small deposits contain less than 5 million tonnes or less than 1 million tonnes.

STATUS OF (IN SITU) RESERVES (Revised August 1991)

Location	Measured + Indicated (million tonnes)	Inferred (million tonnes)
Mt Nicholas	98	small
Harefield	5	-
Fingal	250	large
Dalmayne	160	large
Douglas River	30	small
Langloh (Hamilton)	10	-
Woodbury	25	-
Merrywood		very small <1
Mt Christie		very small <1
Denison Rivulet		very small <2
Strathblane		very small <1
Moss Glen		very small <1
Catamaran		very small <5
Colebrook		very small <5
York Plains		very small <1
Preolenna		very small <5
Mersey		very small <5
Cygnet		very small <1
Mt Lloyd		very small <2
Kaoota		very small <1
Total	578	

The remainder of areas in which coal is known to occur in Tasmania contain extremely small reserves, or very thin seams which in the current economic climate are not workable.

PREVIOUSLY REPORTED RESERVE FIGURES

Coal figures reported in the 1983/84 JCB Year Book *Black Coal in Australia* (as supplied by the then Tasmania Department of Mines) were: (million tonnes)

Measured and indicated (*in situ*) (non-coking)	530
Recoverable*	
Open cut	22
Underground	224
TOTAL	246
Marketable# (non-coking)	147
Inferred resources (*in situ* coal)	large

* derived by taking 50% of the measured and indicated (*in situ*) reserves, minus those thought to be entirely without mining access.

\# derived by taking 60% of the recoverable reserves.

Reserve figures in the 1989 NSW JCB Year Book are given under new definitions. The source for the figures quoted is the Bureau of Mineral Resources.

The categories of both identified *in situ* resources and identified recoverable resources may be: economic, subeconomic, paramarginal or submarginal, depending on the data available.

The categories relating to Tasmania are:

	Tasmania	*Australia (total)*
Identified in situ resources (Mt) (Economic)	530	71 230
Identified recoverable resources (Mt) (Economic)	250	50 776

Firm statistics can only be obtained on individual blocks of coal after a proper feasibility study has been conducted, however, the above figures have been used to give "ball park" figures of the resources.

With the measured and indicated reserves estimated at 578 Mt, and present production (raw coal) at just over half a million tonnes per year, there is little incentive for explorers who hold ground to actively increase the status of other reserves, as there is, at present, no call for greater production. With further exploration no doubt part of the "inferred" category reserves could be firmed up, and taken into the "measured" category.

No attempt has been made to delineate what constitutes "economic recoverable coal" as this depends on such variable factors as the market price which could be obtained, proximity to infrastructure, freight charges or subsidies, as well as constant technological changes. There is the possibility that at some time in the future some coal may possibly be burnt *in situ*, with factories or power plants using the coal sited above the seam, drawing up hot gases and/or circulated (heated) water. This technique is referred to as "in situ gasification". This can enable coal which cannot be extracted by usual means, due to problems of mining access, to be profitably used.

[13 May 1994]

APPENDIX 1

Tasmanian coal production statistics, 1866–1993

YEAR	RAW COAL PRODUCTION			CUMULATIVE TOTAL	ANNUAL EMPLOYMENT	ANNUAL PRODUCTION
	'000 tons/year	'000 tons/year	'000 tonnes/year	'000 ton(ne)s	persons	tonnes/employee
	Source: Booth (1962)					
1866	14	-	-	14	-	-
1867	8	-	-	22	-	-
1868	9	-	-	31	-	-
1869	10	-	-	41	-	-
1870	10	-	-	51	-	-
1871	10	-	-	61	-	-
1872	8	-	-	69	-	-
1873	10	-	-	79	-	-
1874	9	-	-	88	-	-
1875	8	-	-	96	-	-
1876	6	-	-	102	-	-
1877	9	-	-	111	-	-
1878	12	-	-	123	-	-
1879	10	-	-	133	-	-
	Source: Mines records (calendar year)					
1880	12	-	-	145	-	-
1881	11	-	-	156	-	-
1882	9	-	-	165	-	-
1883	9	-	-	174	-	-
1884	7	-	-	181	-	-
1885	7	-	-	188	-	-
1886	10	-	-	198	-	-
1887	28	-	-	226	-	-
1888	42	-	-	268	-	-
1889	37	-	-	305	-	-
1890	50	-	-	355	-	-
1891	43	-	-	398	-	-
1892	36	-	-	434	-	-
1893	35	-	-	469	-	-
1894	30	-	-	499	-	-
1895	32	-	-	531	-	-
1896	42	-	-	573	-	-
1897	42	-	-	615	-	-
1898	48	-	-	663	-	-
1899	43	-	-	706	-	-
1900	51	-	-	757	-	-
1901	45	-	-	802	-	-
1902	49	-	-	851	-	-
1903	49	-	-	900	-	-
1904	61	-	-	961	-	-

YEAR	RAW COAL PRODUCTION			CUMULATIVE TOTAL	ANNUAL EMPLOYMENT	ANNUAL PRODUCTION
	'000 tons/year	'000 tons/year	'000 tonnes/year	'000 ton(ne)s	persons	tonnes/employee
1905	52	-	-	1013	-	-
1906	53	-	-	1066	-	-
1907	59	-	-	1125	-	-
1908	61	-	-	1186	-	-
1909	66	-	-	1252	-	-
					Source: Mines Dept (calendar year)	
1910	82	-	-	1334	-	-
1911	57	-	-	1391	180	317
1912	54	-	-	1445	155	348
1913	55	-	-	1500	136	404
1914	61	-	-	1561	152	401
1915	65	-	-	1626	165	394
1916	56	-	-	1682	167	335
1917	63	-	-	1745	172	366
1918	60	-	-	1805	195	308
1919	66	-	-	1871	209	316
1920	75	-	-	1946	220	341
1921	66	-	-	2012	206	320
1922	69	-	-	2081	263	262
1923	81	-	-	2162	278	291
1924	76	-	-	2238	301	252
1925	82	-	-	2320	260	315
1926	102	-	-	2422	348	293
1927	112	-	-	2534	370	303
1928	128	-	-	2662	367	349
1929	130	-	-	2792	311	418
1930	139	-	-	2931	441	315
1931	124	-	-	3055	374	332
1932	112	-	-	3167	382	293
1933	117	-	-	3284	323	362
1934	114	-	-	3398	342	333
1935	124	-	-	3522	358	346
1936	132	-	-	3654	344	384
1937	91	-	-	3745	332	274
1938	83	-	-	3828	269	309
1939	99	-	-	3927	238	416
1940	83	-	-	4010	239	347
1941	110	-	-	4120	234	470
1942	134	-	-	4254	243	551
1943	146	-	-	4400	276	529
1944	144	-	-	4544	276	522
1945	149	-	-	4693	279	534
1946	159	-	-	4852	276	576
1947	167	-	-	5019	289	578

YEAR	RAW COAL PRODUCTION			CUMULATIVE TOTAL	ANNUAL EMPLOYMENT	ANNUAL PRODUCTION
	'000 tons/year	'000 tons/year	'000 tonnes/year	'000 ton(ne)s	persons	tonnes/employee
					Source: NSW JCB (figures at 30 June)	
1948	179	-	-	5198	280	639
1949	182	-	-	5380	314	580
1950	222	-	-	5602	324	685
1951	237	-	-	5839	321	738
1952	248	-	-	6087	355	699
1953	234	-	-	6321	340	688
1954	264	-	-	6585	371	712
	Source: Mines Dept (calendar year)	*Source:* NSW JCB (calendar year) '000 tonnes/year				
1955	299	303	-	6884	374	799
1956	299	305	-	7183	372	804
1957	268	269	-	7451	288	931
1958	276	281	-	7727	285	968
1959	299	305	-	8026	315	949
1960	297	306	-	8323	317	937
1961	255	266	-	8578	289	882
1962	272	275	-	8850	230	1183
1963	206	201	-	9056	181	1138
1964	151	152	-	9207	114	1325
1965	102	103	-	9309	57	1789
1966	83	86	-	9392	59	1407
1967	76	78	-	9468	54	1407
1968	91	93	-	9559	61	1492
1969	115	120	-	9674	61	1885
1970	124	126	-	9798	57	2175
1971	122	124	-	9920	51	2392
	'000 tonnes/year					
1972	132	133	-	10052	51	2588
1973	114	112	-	10166	44	2591
1974	127	127	-	10293	54	2352
1975	162	162	-	10455	63	2571
1976	189	190	-	10644	78	2423
1977	199	199	-	10843	85	2341
1978	224	224	-	11067	105	2133
1979	237	237	-	11304	107	2215
	Source: Mines Dept (financial year)	*Source:* NSW JCB (calendar year)	*Source:* NSW JCB (financial year)			
1980	279	234	-	11583	113	2469
1981	304	346	302	11885	135	2237
1982	395	515	390	12275	141	2766
1983	548	473	557	12832	140	3979
1984	453	458	453	13285	138	3283

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YEAR	RAW COAL PRODUCTION			CUMULATIVE TOTAL	ANNUAL EMPLOYMENT	ANNUAL PRODUCTION
	'000 tons/year	'000 tons/year	'000 tonnes/year	'000 ton(ne)s	persons	tonnes/employee
1985	496	526	491	13776	143	3434
1986	509	555	502	14278	155	3239
1987	622	621	617	14895	150	4113
1988	608	634	600	15495	146	4110
1989	632	571	645	16140	133	4850
1990	569	628	596	16736	153	3895
1991	560	536	585	17321	150	3900
1992	486	518	542	17863	155	3497
1993	495	-	-	18358	-	-

Note: Reporting base

1866–1971 tons/year
1971– present tonnes/year

1 ton = 1.016047 tonnes. No allowance made for change in cumulative totals.

Calculation t/employee/year from:

1910–1947 by Mines Department calendar year production/employment average for year
1948–1979 by Mines Department calendar year production/employment given by NSW JCB at June each year
1980 by Mines Department financial year production/employment given by NSW JCB at June each year
1981–1992 by NSW JCB financial year production/employment given by NSW JCB at June each year