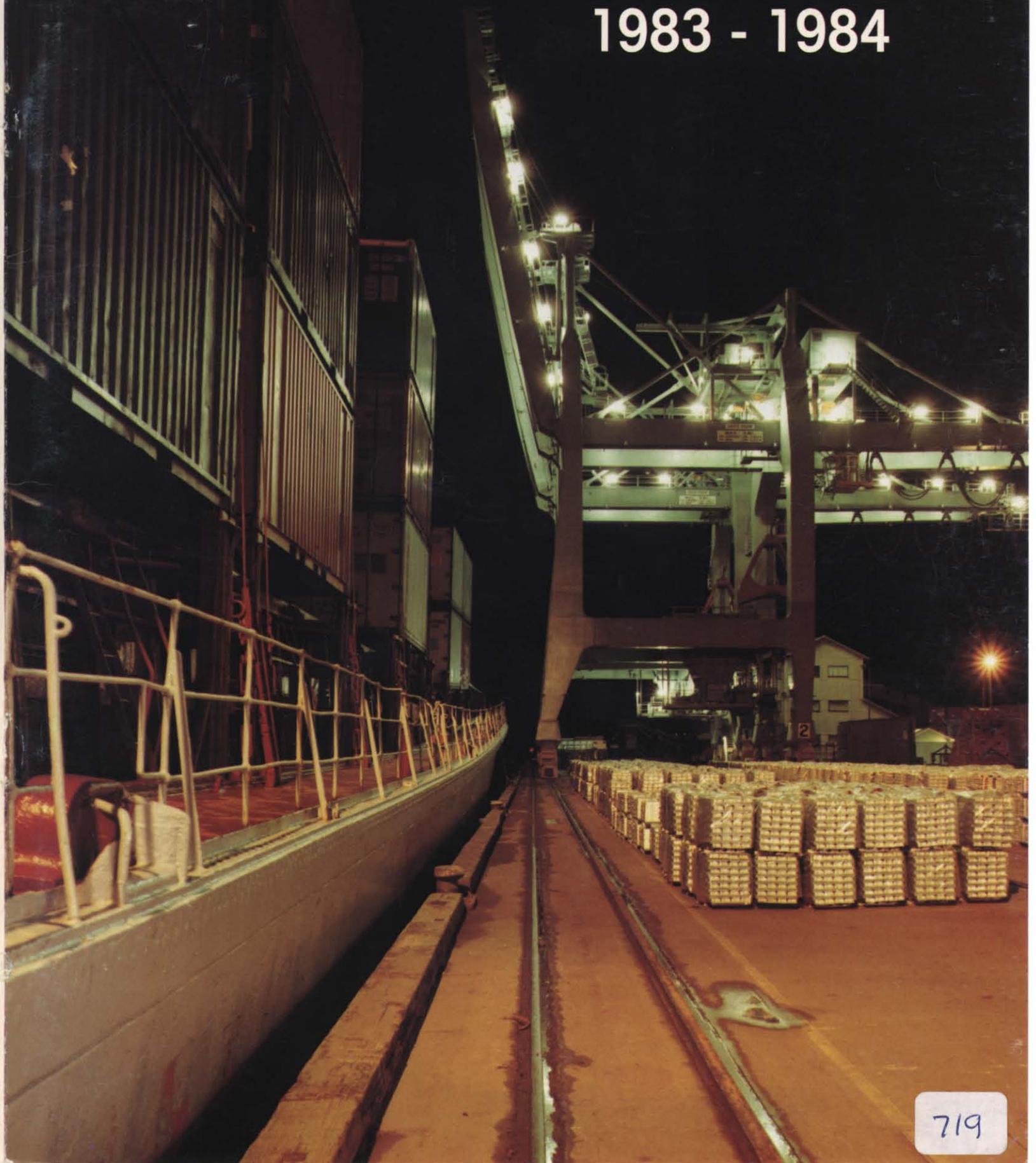


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# REPORT OF THE DIRECTOR OF MINES 1983 - 1984



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1985

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PARLIAMENT OF TASMANIA

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# **DIRECTOR OF MINES**

## **REPORT FOR THE YEAR ENDED 30 JUNE 1984**

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*Presented to both Houses of Parliament by His Excellency's Command*

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TO THE HONOURABLE F. ROGER GROOM M.H.A., MINISTER FOR MINES

I submit the annual report of the Department of Mines for the year 1983-1984.

### A NEW DIRECTION FOR THE DEPARTMENT

Late in 1983 the Government announced that the role of the Department would be extended into active resource development. Following this initiative a new Resource Development, Planning and Policy Branch was established in April 1984. On 2 April Mr M. R. Hargreaves was appointed Deputy Director of Mines with the added responsibility of heading the new Branch. With over eighteen years experience in active mineral exploration Mr Hargreaves is well qualified to develop Departmental initiatives in this area.

The principal role of the new Branch will be to:

- Encourage exploration and facilitate the establishment of new mines within the State,
- Co-ordinate the activities of the other Departmental Branches to achieve the Government's aims,
- Negotiate development proposals for exploration and mining,
- Assist the Director in advising the Minister on matters of mineral policy,
- Guide the development of a corporate plan for the Department, and
- Develop the Department's public relations activities.

### VALUE AND PRODUCTION OF PRINCIPAL MINERALS

The value of production from Tasmanian sources for the year was \$366 million, a decrease of seven per cent compared with the previous year, while production from imported ores was \$432 million, an increase of twenty-seven per cent. Total value of production showed an increase of 9.3 per cent.

Table 1. VALUE AND PRODUCTION OF PRINCIPAL MINERALS

<i>Commodity</i>	<i>Quantity</i>	<i>Value (\$M)</i>
Copper (tonnes)	25 070	41.6
Gold (kilograms)	1 364	19.1
Iron ore pellets (tonnes)	2 102 617	57.4
Lead (tonnes)	24 882	13.4
Silver (kilograms)	64 969	23.2
Tin (tonnes)	4 835	75.8
Tungsten as tungstic oxide (tonnes)	1 195	10.1
Zinc (tonnes)	41 098	45.9
Coal (tonnes)	453 288	11.4

### STATE OF THE INDUSTRY

The resources sector has been experiencing a slow emergence from the deep recession of the last few years with little development in the mining industry.

Copper prices remain at a very low ebb and the State's principal producer, Mt Lyell, faces a difficult decision of increased investment or curtailed production. This decision will be based on results of current exploration of future reserves.

The tin market continues to be supported by the International Tin Council buffer stock manager and tin export controls remained in force throughout the year. In consequence of this, Cleveland and Renison mines operated at sixty per cent of capacity and Cleveland, with diminishing reserves faces an uncertain future.

Demand for tungsten remains weak, with no immediate prospect for expansion of production or recovery from the severe cut backs at the King Island Scheelite mine.

Lead and zinc are however relatively strong, supporting major operations at Rosebery and the world class Que River mine.

In contrast to these unencouraging conditions, new developments and discoveries foster optimism for future growth in the industry.

Interest in gold has been sustained with considerable exploration investment at Beaconsfield and renewed activity in alluvial mining of traditional gold-bearing areas.

In spite of the present financial restraints on the industry in general the level of exploration in the State has remained encouragingly high. The continuing high price for gold has encouraged increased interest in the Mt Read Volcanics which has led to the Aberfoyle–Paringa joint ventures exciting discovery of a zinc, silver-lead and gold deposit at Hellyer.

The joint venturers claim that this discovery has an inferred reserve of some twelve million tonnes of ore containing 1.68 million tonnes of zinc, 840 000 tonnes of lead, 36 000 tonnes of copper, 2.16 million kilograms of silver and 30 000 kilograms of gold.

A proposal to investigate the possible use of the Electrona facilities to smelt silicon metal has generated a re-evaluation of the State's extensive silica reserves.

Exploration and feasibility studies for coal supplies for a thermal power station have been prompted by a Hydro-Electric Commission investigation of thermal energy options. Most if not all of the State's coal reserves now seem to be established, and being unsuitable for export, will depend on localised demand for development and expansion. Local industrial demand appears to be stabilising around 300 000 tonnes per year and will only enlarge when final decisions are made about thermal power generation. Lowered oil prices and availability of oil has led to a decrease of interest in oil shale.

Offshore petroleum has seen an upsurge in activity. Two wells are soon to be drilled by a consortium led by Weaver Oil and Gas, and 1984–1985 will see additional seismic activity plus an additional three wells to be drilled by Amoco.

The State's resources include world class ore bodies at Renison, Que River and now Hellyer. To further encourage exploration a new policy of licence tenure has been introduced whereby half an existing area has to be surrendered after five years. This has had the effect of accelerating exploration activity as operators establish priorities of interest. Exploration will thus take on a new perspective in 1984–1985 with the release of highly prospective ground from long standing licences and a system by which new licences will be awarded based on the selection of exploration proposals from competing applicants.

Tasmania contains valuable mineral resources, but the benefit can only be reaped when these resources are available for development. Metal prices and world markets are factors over which the State can exercise little control, but there are ways in which a healthy climate can be created for development.

The challenge is to retain access to ground for exploration. Management plans for reserved land must make provision for mineral exploration. Exploration within Conservation Areas is being successfully carried out subject to strict environmental control, demonstrating that multiple land use policies are effective.

## METALLIC MINERALS

### COPPER

The local copper industry is suffering from rising costs, declining grades, depleted ore bodies and world prices kept low by sub-economic Third World producers.

The Mount Lyell Mining and Railway Company, which has operated for more than 100 years, yielded 23 471 tonnes this year. Cleveland Tin Limited produced 372 tonnes and the Electrolytic Zinc Company produced 1227 tonnes as a by product.

At the Mt Lyell mine, Queenstown, the new pumping facility at Prince Lyell No. 1 shaft was completed and commissioned, development of the forty Series of stopes commenced and three large pillar blasts involving some 800 000 tonnes of ore were successfully fired. Copper recovery was lower than for 1982–1983 and it is believed that the treatment of a greater quantity of weathered ore was responsible for this fall in efficiency.

## **GOLD**

The Electrolytic Zinc Company produced 791 kilograms of gold and the Mount Lyell Company produced 570 kilograms of gold in zinc and copper concentrates respectively.

The upsurge in gold prices increased interest in alluvial workings from which three kilograms were derived.

There is considerable interest in the alluvial gold field at Lisle and the establishment of at least one substantial working was underway at the year-end. This development will require that the miners co-operate with the Forestry Commission to maximise the benefits that can be obtained from both industries.

The examination of the gold field at Beaconsfield is continuing as well as the investigation into the gold tailings dump at Middle Arm.

## **IRON ORE**

Savage River mines at Savage River and Port Latta is the only pellet producer in Tasmania.

Production at Savage River was cut back to eighty per cent of annual capacity due to lower consumer demand and resulted in an extended shut-down in the December to February period. Ore produced from the Northern Deposit increased from twenty-seven per cent to over forty-five per cent of the total ore mined during the year. Preliminary work was begun on establishing waste rock dumps at Brodericks Creek and to the south-west of the Central Deposit. Work continued on stabilising the pit walls in the Central Deposit, this consisted of drilling horizontal drain holes, installing permanent drains and lowering the pit-slope of the East wall. Work on the construction of Main Creek Tailings Dam was approximately sixty per cent completed by the year-end. The new access road from the township to the mine site, except for the section in the vicinity of the dam, and other works associated with the establishment of the dam, such as sewage plant, services and bush clearing, were generally completed. A major exploration drilling programme was undertaken in the Northern Deposit and the results are now being evaluated. At Port Latta work continued on refurbishing the structural steelwork of the pellet stacker during the shut-down period and the dredging of the clarification basin and environmental lake was well advanced by the year-end. A project to control the pellet plant processes by means of a computer was begun.

Production of iron ore pellets totalled 2.1 million tonnes.

## **LEAD**

Zinc refining at the Electrolytic Zinc Company produced Tasmania's total output of 24 882 tonnes of lead.

## **SILVER**

No Tasmanian mine produces silver in its own right. However, zinc concentrates from the Electrolytic Zinc Company and Que River mines contained 60 156 kilograms of silver. Similarly the Mount Lyell Company produced 4813 kilograms of silver in copper concentrates.

## **TIN**

The tin mining industry remains constricted by the Australian export quota system. As a result the production of Renison Limited at Renison Bell is held below the designed capacity. Cleveland Tin Limited at Luina has the dual problems of tin quotas and low copper prices which seriously reduce profitability.

Uncontrolled and expanding tin production by countries such as Brazil and Canada, which are outside the International Tin Agreement, forces the continuation of the quota system. The world trend in the tin industry discourages small tin producers in Tasmania.

Tin production at Renison was 3 822 tonnes and at Cleveland 955 tonnes, or seventy-five per cent and seventy-two per cent respectively of the previous year's production.

Renison Goldfields Consolidated completed a major technical and financial evaluation of the pyrometallurgical options available to the Renison mine. A notable achievement at the Renison mine was the record 74.2 per cent recovery in the concentrator, this success was based on the results from in-house research.

With the writing-down of ore reserves from 1.2 million tonnes to just over 350 000 tonnes and no improvement in the international metal markets there is considerable doubt about the long-term prospects for the Cleveland mine.

During the year pumping of the underground water ceased and operations at the mine were gradually being withdrawn from the lower levels to the upper and surface level pillar reserves. The investigation into the improved technology of matte fuming of tin was completed but the project has been deferred until the market situation improves. There is a potential to increase the ore reserves at the mine if production controls are removed and there is an improvement in the price of tin. With the turn-down in operations the work force strength was reduced during the year from 227 to 100 permanent personnel.

There was a marked reduction in the activities of the alluvial tin miners at Branxholm, Derby, Gladstone, Weldborough and St Helens.

Only six persons were employed full time in alluvial tin mining during the year and the quota allocations are a severe financial blow to those who invested heavily in this industry.

Although exploration activity was maintained in the area, the emphasis has shifted from tin to lead-zinc and precious metals.

### TUNGSTEN (SCHEELITE)

King Island Scheelite and the Kara mine south of Burnie produce all Tasmania's output. The metallurgical complexity of King Island's extraction places that mine at a production cost disadvantage compared to the Kara mine.

King Island Scheelite faced severe operating problems during the year due to the depressed market demand for tungsten. As a result production levels were reduced and the labour force was cut to half its operating levels at the beginning of the year. As part of the strategy, the Bold Head mine was put on care and maintenance. There was a general shut-down of five weeks and capital expenditure was suspended as from 1 January 1984.

### ZINC

The State's zinc industry continues to weather the recessionary conditions. The principal producer is the Electrolytic Zinc Company of Australasia Limited with its silver-lead-zinc mines at Rosebery and Williamsford on the West Coast and its metallurgical works at Risdon in Hobart.

Both these operations form an important employment component in their respective economic areas and thus have far-reaching effect on the general economy of the State.

Besides treating the company's own ore concentrates from Rosebery, the Risdon plant handles ore from Elura, Broken Hill and Mt Isa while the Rosebery plant treats the ore production from Que River Mines under an agreement with Aberfoyle Limited.

At the West Coast mines of E.Z. Company of Australasia Ltd the decline below 17 Level holed through to the bottom of No. 2 Shaft. This, together with the installation of a booster fan in the southern upcast ventilation system on 16 Level has improved the ventilation in this Section in preparation for the full scale production from the Decline Section in the next financial year.

Production at Aberfoyle's Que River was adversely affected by industrial disputation which lasted from 6 March to 20 May. Exploration in the leases adjoining the mine has indicated zones of interest which will be followed up in 1984-1985.

The Electrolytic Zinc Company Limited's Risdon works as the biggest employer in the mining and metallurgical industry in the South of the State, had a very difficult year beset with complicated industrial negotiations and culminating in the take-over of the parent company by North Broken Hill Holdings Limited. Shortfall in delivery of concentrates was due to industrial problems in the mines. The new gantry cranes for the company's wharf were completed at a cost of \$14 million and are expected to markedly improve cargo handling.

## FUEL MINERALS

### COAL

The Cornwall Coal Company N.L. continued as the only coal producer in the State. Production from the Duncan and Blackwood mines totalled 453 288 tonnes. This was a decrease of 17 per cent from the previous year. Two hundred and ninety six thousand and fifty three tonnes came from the Duncan Colliery and 157 235 tonnes from the Blackwood Colliery. There was no significant change in the number of persons employed. Out of a total of 147, eighty-one were employed underground.

The Blackwood Colliery reduced production due to faulted ground. Although the fault was crossed it led into an uneconomical seam. At the Duncan Colliery the reduced production was due to more difficult mining conditions.

Capricorn Mining completed exploration on E.L. 27/79 around the area of the old Langloh mine. Further development of this deposit is dependent on obtaining a market for the product. The Shell Company is in a similar situation with respect to its deposits in E.L. 5/61.

At Woodbury, North-West Bay Company Limited and Victor Petroleum and Resources Limited have entered into a joint venture on E.L. 31/80 with Costain Australia Limited and exploration has been renewed.

CSR Limited has completed exploration on its E.L. 20/80 at Rosevale. As with Shell and Capricorn further development is dependent on locating a market.

Due to the High Court decision on the Gordon below Franklin hydro power scheme it appears very likely that the State will require a coal-fired thermal power station to meet power requirement by 1991.

Work has continued within the Department on the compilation of a comprehensive survey of the coal resources of the State. Estimates of the coal reserves in each area as made by the companies concerned are given in Table 2.

Table 2. COAL RESERVES

<i>Area</i>	<i>Company</i>	<i>Reserves</i>	<i>Reserve status</i>
East Coast (E.L. 5/61)	Shell	275 M tonnes	Measured and indicated
Hamilton	Capricorn Mining	4 M tonnes	Measured
Woodbury	Victor Petroleum	25 M tonnes	Measured
Rosevale	CSR	118 M tonnes	Indicated

### NON-METALLIC AND CONSTRUCTION MATERIALS

In the non-metallic and construction materials section of the industry consumer demand started to pick-up as the building and farming industries recovered. Production of dolomite, kaolin, silica, crushed and broken stone, gravel and sand increased. However, there was a marked decline in the production of limestone for cement manufacture reflecting the industrial disputation which occurred in this industry during the year.

#### BRICK CLAY

Brick Clay is produced for the Hobart Brick Company, Clifton Brick Tasmania Pty Ltd at Longford and Zolati and Sons, Dulverton. The total quantity was 70 211 cubic metres.

#### BUILDING STONE

Production was maintained for the year at 791 cubic metres.

#### CRUSHED AND BROKEN STONE

Basalt production showed a twenty per cent decrease due to reduced road expenditure for the first half year while dolerite output rose by over 300 per cent due mainly to a high level of production by the HEC on the Mackintosh power scheme. Limestone quantity fell by almost fifty per cent in keeping with the basalt figure.

Sandstone production remained constant, other road materials showed a forty per cent drop in keeping with the basalt trend and gravel and sand production remained constant.

**GRAVEL**

Total production for the year was 1.5 million tonnes, the biggest individual producers being the Department of Main Roads and the Forestry Commission.

**INDUSTRIAL MINERALS****IRON OXIDE**

Iron oxide comes from a small hematite operation near Penguin.

**KAOLIN**

Kaolin is quarried at Tonganah by APPM for use in the production of paper.

**LIMESTONE**

Limestone is produced in many areas of the State. Approximately half the production is used in cement with the remainder equally divided between agricultural and metallurgical use.

**SILICA**

Approximately 42 000 tonnes of silica were produced for glass making and silicon alloys.

**SILICON COMPOUNDS**

Silicon compounds are produced by TEMCO Bell Bay for its parent Company BHP.

**SPECIMEN MINERALS****CROCOITE**

Crocoite, a crystalline form of lead chromate, is in demand as a mineral specimen and is produced from the Adelaide and Red Lead mines near Zeehan.

**FOREIGN ORES****ALUMINIUM**

Aluminium is smelted by Comalco at Bell Bay from alumina imported from the mainland.

**ILMENITE**

The Heybridge plant of Tioxide Australia Pty Ltd imported 59 662 tonnes of ilmenite from Western Australia for the production of titanium dioxide.

**LEAD-ZINC**

The Electrolytic Zinc Company of Australasia Ltd at Risdon imported 218 661 tonnes of ore from mainland sources. From these the company also produced small quantities of cadmium and cobalt oxide.

**MANGANESE**

TEMCO imported 63 850 tonnes of manganese ore for the production of ferro manganese and the further treatment of slag to produce silico manganese.

**THE FUNCTIONS OF THE DEPARTMENT OF MINES**

The Department provides the store of accumulated knowledge of mineral exploration, mineralisation and geology of the State in forms easily accessible to industry. It encourages and facilitates the orderly and responsible development of the State's mineral and energy resources.

The State's mineral lands are administered in order to provide maximum benefit, by way of employment opportunities and financial return, with minimum environmental and other disruption.

The Department maintains and promotes adequate standards of safety and occupational health in mining and processing operations and in the transport, storage and use of dangerous goods.

It researches improved techniques and processes for the discovery, extraction and recovery of minerals and provides geological, mining and metallurgical assistance to the State's mining industry.

There is a systematic assessment of, and provision of advice on, the State's groundwater resources and engineering geology.

The Department liaises with the private sector and other Government Departments to facilitate the responsible development of new mining projects.

**THE ISSUES WHICH OCCUPIED THE DEPARTMENT THIS YEAR INCLUDED:**

- The progressive alienation of land for productive purposes, including mining, due to dedication as National Parks.
- The concept of single land use in existing National Parks without the assessment of mineral potential.
- Stimulation and encouragement of the expansion of existing mining and exploration operations in the State, to optimise the benefits from existing mines and to identify new ones.
- The continuation of the systematic geological mapping of the State in response to the fundamental need of the exploration industry.
- The introduction of simplified procedures for the issue of mining and exploration tenements to facilitate development.
- The elimination of problems relating to private ownership of minerals.
- The introduction of computerised systems for drafting, data storage and mineral statistics to improve access for Government and industry.

## REPORTS BY BRANCHES OF THE DEPARTMENT OF MINES

### ADMINISTRATION

#### EXPLORATION LICENCES

The number of applications received for licences was sixty-five compared with sixty-four during 1982-1983. Fifty-three of the applications were for all minerals and the balance of twelve was for coal, oil and shale. However, twenty-six of the applications were either withdrawn or cancelled. This was due to a variety of reasons, including multiple marking out of the same area by several companies, failure to comply with procedures and ground being unavailable.

Applications received during the past four years are as follows:—

1980-1981	67	1982-1983	64
1981-1982	45	1983-1984	65

The guidelines introduced on 1 July 1982 included a provision for compulsory reduction. Holders of mineral exploration licences which had been current for more than five years and which exceeded 125 km<sup>2</sup> in area had until the first renewal date after 1 July 1984 to reduce to 125 km<sup>2</sup>. The equivalent area for coal is 250 km<sup>2</sup>.

Consideration was therefore given to the procedure to be followed for released areas. It was decided that licence holders would be required to notify the Department two months before the expiry date and the areas would be exempted from the provisions of the Mining Act 1929. They would then be advertised in the Government Gazette inviting tenders. Tenders would be assessed on the exploration philosophy and financial, professional and technical resources of the companies making application for exploration rights.

The Working Group chaired by the Department of Mines and including representatives of the Forestry Commission, National Parks and Wildlife Service and the Department of the Environment continued to assess the programmes for exploration in the South West Conservation Area.

At 30 June there were 116 current exploration licences and one special prospector's licence in the State.

Expenditure on exploration for the year was \$10 596 476 compared with \$12 724 450 in 1982-1983.

#### OIL EXPLORATION

Table three shows details of permits issued under the Petroleum (Submerged Lands) Act 1982 which were current at 30 June 1984.

Table 3. OIL EXPLORATION PERMITS

<i>Title</i>	<i>Holder</i>	<i>Blocks</i>	<i>Expiry Date</i>
T/13P	Otter Exploration N.L.	224	4.4.85
T/14P	Cue Minerals N.L.	42	9.1.86
T/15P	Weaver Oil and Gas Corp. Aust.	272	19.2.86
T/16P	Weaver Oil and Gas Corp. Aust.	32	19.7.86
T/17P	Van Diemen's Land Resources N.L. and Others	16	7.8.86
T/18P	Bass Strait Oil and Gas N.L. and Others	118	22.7.86
T/19P	Perthshire Petroleum Ltd	243	27.3.87
T/20P	Van Diemen's Land Resources N.L. and Others	75	17.11.87

The following brief details give an indication of the work carried out by permit holders during the year:—

T/12P As indicated in last year's report an application to surrender this permit was received on 31 March 1983. The Commonwealth and the Designated Authority approved the surrender which was gazetted on 31 August 1983.

T/13P The permit holder entered into an agreement with Union Texas Australia Inc. This provided for six months analytical review of all remaining leads to identify two drillable prospects for drilling in the final six months of the permit. Approval was given on 10 April 1984.

- T/14P The permit holder made application for a variation of the programme and a farm-in agreement with Amoco Australia Petroleum Company and South Australian Oil and Gas Corp. Pty Ltd as principal interest holders. The variation of programme provides for the permit holders to spend \$5 385 000 including the drilling of at least one well. This was approved in April 1984.
- T/15P A variation of the programme was approved by the Commonwealth and the Designated Authority. This allows an extension of 240 days for the completion of a test well to be known as the Squid Well. In June applications were received for nine farm-in agreements.
- T/16P A variation of the programme was approved by the Commonwealth and the Designated Authority. This allows an extension of ninety days for the completion of a test well to be known as the Tasmanian Devil. In June applications were received for nine farm-in agreements.
- T/17P This permit holder sought a farm-in agreement to meet financial and work obligations. A sixty day option was granted to Granada Energy Corporation of Pasadena, California and Hilditch Vine Pty Ltd of Melbourne, to complete a re-interpretation of the Abalone Prospect in this permit and in T/20P and VIC/16P. The assessment was to be completed by 4 June 1984.
- T/18P This permit holder also made application for a variation of the programme and a farm-in agreement with Amoco Australia Petroleum Company and South Australian Oil and Gas Corp. Pty Ltd as principal interest holders. The variation provides for the permit holders to spend \$11 315 000 including the drilling of at least one well. This was approved in April 1984.
- T/19P A variation of conditions was approved in June 1984. This provided for the deletion of the drilling of a well in Year three, an additional 300 km of seismic survey in Year four to define drillable prospects and the drilling of two wells in Year five.
- T/20P This permit is held by the same company as T/17P, namely Van Diemen's Land Resources N.L. and the same comments apply with respect to the sixty day option to the Granada Group.
- T/22P In November 1983, applications were invited for fifty-two blocks in Bass Strait. These had previously been held by Hematite Petroleum Pty Ltd, a subsidiary of BHP Ltd, as Permits T/5P and T/6P. Two tenders were received by the closing date of 23 March 1984. A decision was made in June by the Joint Authority that the permit be granted to Amoco Australia Petroleum Company.

## LEGISLATION

The revised Schedule of Fees, Rents and Royalties applicable to the Mining Act 1929 came into effect on 14 March 1984.

## AUSTRALIAN MINERALS AND ENERGY COUNCIL

The Council, comprised of the State and Commonwealth Ministers for Mines and Energy, met on 3 June 1983 in Brisbane and on 3 February 1984 in Sydney.

Important matters discussed included:

- (1) Resources Taxation
- (2) Liquid Fuels Emergency Legislation
- (3) Australian Heritage Commission Act
- (4) Declaration of National Parks
- (5) National Conservation Strategy
- (6) Energy Conservation
- (7) International Tin Agreement
- (8) Tax incentives for conversion of oil-fired plant
- (9) Co-ordinated government geoscience activities
- (10) Raw Materials Processing

The Minister for Mines, the Honourable F. Roger Groom expressed strong opposition to the concept of a Commonwealth Government imposed Resource Rent Tax, with the view that the regulation of mining and energy development and revenue collection are best co-ordinated at State Government level.

A Commonwealth-State working group has been established to examine the activities of the Heritage Commission and to consider the issues of exploration and mining in National Parks.

Commonwealth Government, State Government, and industry representatives met to review the system of allocation of tin quotas.

## COURT OF MINES

Tasmania is divided into four mining districts. Each district has a Warden of Mines. The Wardens, who are magistrates, hear disputes arising under the Mining Act 1929, in the Court of Mines. The Wardens are:

Mr J. Temple-Smith, North-Western Mining District.

Mr M. A. Hannon, Central Mining District and South-Western Mining District.

Mr K. N. Dockray, North-Eastern Mining District.

Cases heard during the year consisted of:—

Nineteen Objectors v BHP Co. Ltd. Objection to Exploration Licence 19/83, 229 km<sup>2</sup>, Mt Mueller. The objections were dismissed by Warden Hannon on 5 August 1983. An appeal to the Supreme Court was lodged by two objectors but was discontinued on 29 November 1983.

Robbins Island Pty Ltd and Montanes Pty Ltd v Peko Wallsend Operations Ltd. Objection to Exploration Licence 10/83, 100 km<sup>2</sup>, Robbins Island. The objection was withdrawn on 29 September 1983.

B. F. Wenn v BMI Mining Pty Ltd. Application for forfeiture of mineral lease 61M/73, 21 hectares, Beaconsfield. The application was withdrawn on 10 October 1983.

Tasmanian Conservation Trust v Amoco Minerals Australia Company. Objection to Exploration Licence 30/83, 210 km<sup>2</sup>, Governor River. The objection was withdrawn on 15 August 1983.

Tasmanian Conservation Trust v Amoco Minerals Australia Company. Objection to Exploration Licence 31/83, 148 km<sup>2</sup>, Macquarie River. The objection was withdrawn on 15 August 1983.

Tasmanian Conservation Trust v Amoco Minerals Australia Company. Objection to Exploration Licence 32/83, 250 km<sup>2</sup>, Princess River. The objection was withdrawn on 15 August 1983.

Tasmanian Conservation Trust v Placer Exploration Limited. Objection to Exploration Licence 35/83, 244 km<sup>2</sup>, Cape Sorrell. The objection was withdrawn on 15 August 1983.

Tasmanian Conservation Trust v Placer Exploration Limited. Objection to Exploration Licence 36/83, 244 km<sup>2</sup>, Hibbs Lagoon. The objection was withdrawn on 15 August 1983.

Tasmanian Conservation Trust v Placer Exploration Limited. Objection to Exploration Licence 37/83, 242 km<sup>2</sup>, Spero River. The objection was withdrawn on 15 August 1983.

T. R. Brampton v Aberfoyle Exploration Pty Ltd. Forfeiture of mineral leases 62M/63 and 63M/63, 3 hectares each, Mt Lindsay. The application was heard before Warden Temple-Smith and adjourned *sine die*.

L. Locsei v R. Crane and P. Chapman. Application for forfeiture mineral lease 41M/74, 100 hectares, Lisle. The application before Warden Dockray was adjourned *sine die* on 24 February 1984.

R. Beams v G. D. Poke. Application for forfeiture of mineral leases 48M/72 and 49M/72 each of 2 hectares and water licence 14W/80. The application was adjourned.

B. V. Lockwood v Renison Limited. Objection to Exploration Licence 60/83, 98 km<sup>2</sup>, Beaconsfield. This application was withdrawn on 15 March 1984.

## MINES AND DANGEROUS GOODS INSPECTORATE

### MINES INSPECTION ACT 1968

#### GENERAL

The downturn in the mining industry continued during the year due to weak international metal markets, especially in copper, lead and scheelite, and to the tin quotas applied by the International Tin Council.

There was a marked decline in the operations of alluvial tin miners, and this is expected to continue as the miners battle with rising mining costs in a static market with no promise of relief.

Again there were several interruptions to production due to industrial action and this can only exacerbate the problems being experienced by the industry.

Production of coal fell by some 75 000 tonnes but this was due to more difficult mining conditions in the two operating collieries.

#### METALLURGICAL INDUSTRY

The metallurgical industry had a successful year with the value of production increasing by over \$90 million due mainly to the buoyant market for aluminium metal which existed for most of the year.

#### EMPLOYMENT

The average number of persons employed or self-employed in the mining, metallurgical and quarrying industries fell from 8425 to 8161 during the year. Most of this fall is attributed to the cut-backs in operations at King Island Scheelite and Cleveland mines. It was pleasing to note that the number of persons working in the metallurgical industries at Bell Bay had increased by 123 at the year-end.

#### ACCIDENTS

Accidents are reported and recorded in accordance with Australian Standard AS1885.

Again there was a real improvement in the number of lost time accidents in the industry. The number of reportable accidents fell from 1488 to 1369 during the year. However, it is with regret that we report one fatal accident occurred during the year at the Electrolytic Zinc Company of Australasia's Risdon works.

Frequency rates, days lost and incidence rates also fell and with the co-operation of management, employees, trade unions and the inspectorate this trend should continue.

#### DRILLING

Drilling was carried out in all parts of the State including the West Coast where the major project was a stratigraphic drilling programme which involved the use of five drilling rigs at one time during the summer season. The most notable achievements were the deep holes drilled at Stanley and Woodbridge which were completed to 1070 metres and 1023 metres respectively.

Groundwater investigation on the East Coast and in the Midlands occupied the Warman 1000 and Mayhew rigs.

Site investigation drilling was carried out for the Departments of Main Roads and Construction. Projects included Burnie Expressway, Hobart Police Station, Burnie Police Station, Launceston Community College, West Tamar Highway, Mornington-Howrah By-pass and the Hobart Southern Outlet. Drilling was also done for the Australian National Railways at Railton and for a landslip investigation at St Helens.

Six drilling crews were employed at the year-end.

The drilling programmes are summarised as follows:

Stratigraphic drilling	4850 metres
Groundwater investigation	3091 metres
Site investigation	928 metres
Tin investigation	662 metres

Total:	9531 metres
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### DANGEROUS GOODS (DANGEROUS GOODS ACT 1976)

The number of field inspections covering handling, storage, import, use and sale of dangerous goods increased by approximately thirty-eight per cent to 3262. Premises licensed to keep dangerous goods increased during the year by 126 to a total of 2 489. Importation of LP gas increased from 18 584 tonnes to 22 267 tonnes. All imports of Class 1; 2. 1; 3. 1; 3. 2 and 3. 3 Dangerous Goods into the State were supervised by the Inspectors of the Branch.

There was a small increase in the number of licences to sell fireworks and safety cartridges. During the fireworks season the Inspectors concentrated on inspections of shop premises keeping and selling fireworks.

There were twenty-two incidents involving Dangerous Goods investigated by the Branch, including a tragedy at Swansea where a family of four died in a holiday shack when using an LP gas burning appliance overnight in a poorly ventilated area. As a result of this accident the Department is producing information pamphlets for the public on the hazards of mis-using or mis-handling dangerous goods. Members of the Inspectorate served on many committees during the year including the ATAC's Advisory Committee and Competent Authorities Committee for the Transport of Dangerous Goods by Road and Rail. Other Committees of importance were the Australian Standards Committee dealing with Dangerous Goods.

During the year Mr H. E. T. Medwin, Inspector of Explosives, Burnie, retired after sixteen years of service with the Department.

### GEOLOGICAL SURVEY BRANCH

Systematic geological mapping continued on the Lyell, Macquarie Harbour and Corinna sheets during the summer field season whilst the winter mapping programme was confined to the St Helens, Dover, Interlaken and Snow Hill sheets.

The St Marys and Pedder sheets are currently being drafted and will be printed during 1984–1985. During the year the Eddystone and Blue Tier map sheets were printed together with a coloured geological map of the Dundas–Ramsay area. The Middlesex sheet and Mineral Resource Maps 'A' and 'B' were reprinted due to depletion of stocks. An Explanatory Report on the geology of the Maria Island sheet was published whilst similar reports on the Sorell and Oatlands sheets were edited and forwarded to the printer. Work is proceeding on the preparation of Explanatory Reports on the St Marys, Eddystone and Kingborough sheets.

It is pleasing to report that Dr D. McP. Duncan took up his appointment as Supervising Geologist, Economic Geology on 1 February 1984. Dr Duncan brings a wealth of experience and expertise in economic geology to the Section and brought the strength of the Section up to establishment for the first time in some years. Senior Geologist D. J. Jennings was transferred to the newly formed Resource Development, Planning and Policy Branch of the Department on 2 April 1984 leaving the Section again below optimum strength.

The Economic Section continued with studies of the silver-lead-zinc and tin-tungsten deposits of the State and commenced work on gold mineralisation in the State. The coal resources study was continued and is now about sixty per cent complete. The Section is still heavily involved in administrative matters concerning mineral exploration within the State. A large proportion of the work of the Section during the year concerned matters such as guidelines for procedures to deal with relinquished exploration areas, the processing of reports on mineral exploration and the provision of advice on exploration within licence areas.

The Engineering Geology and Groundwater Section completed a major groundwater assessment programme over a portion of the East Coast in response to difficulties arising from the drought conditions which prevailed for much of the year. Several successful water bores resulted and significant groundwater reserves were identified. The Lower Midlands groundwater assessment programme was continued and several successful bores completed in the Melton Mowbray area. A start was made on the drafting of a new Groundwater Act.

The Section continued to provide advice on aspects of land stability in urban areas, the main districts involved being St Helens, the Tamar Valley and the coastal escarpments of the north-west coast.

A seminar on landslide hazards was conducted at the TCAE Newnham and officers of the Section combined with the Drilling Section to provide a comprehensive exhibition at the Agview exhibition, Cressy, in November 1983.

The Palaeontologist collected further faunas from sequences in the Kingborough and Pedder areas. Following the untimely death of Senior Geologist N. Farmer the palaeontologist has been engaged in the compilation of the Explanatory Notes on the Kingborough sheet.

The Geochemist has continued studies of the gold deposits in the vicinity of Lisle and has also successfully tested a new method of geochemical sampling on an anomalous area under examination in the vicinity of Waratah.

Petrological and mineralogical investigations continued and were heavily influenced by a very active demand for the identification of asbestos in various environments. Other studies carried out included aspects of hydrothermal alteration of the Coles Bay granite.

Geophysical activity included the continuation of gravity studies in the Lower Midlands, Boobyalla, Stanley and Sorell-Forcett areas. Other geophysical surveys were carried out in the vicinity of the Darwin Crater south of Queenstown and in the Ocean Beach area near Strahan. Seismic and electrical surveys were carried out in several areas. Much time was devoted to the demand for geophysical data in relation to oil exploration in Bass Strait. The second stage of the systematic aeromagnetic survey of the State was completed by the Bureau of Mineral Resources but corrected data is not yet available for public distribution.

### CHEMICAL AND METALLURGICAL BRANCH

Although the number of samples registered was only 1526 the total determinations made was one of our largest at 11 060. This reflects the state of the mining industry with few exploration samples but a large number of complex rock analyses (195) and also a large number of samples from the Departmental Economic Geology Section each for a large number of elements.

Tungsten assays at 927 were at a record level reflecting work at Kara. Also done at record levels were arsenic, barium, cobalt, lead, nickel, scandium and zinc. Tin was at its lowest level since 1979.

#### TYPE AND NUMBER OF TESTS

Quantitative					
Elements	..	..	..	..	9 799
Physical properties	..	..	..	..	439
Waters	..	..	..	..	485
Industrial Liquors	..	..	..	..	82
					<hr/>
Total					10 805
					<hr/>
Qualitative	..	..	..	..	61
Metallurgical	..	..	..	..	194
Research	..	..	..	..	12

#### SUMMARY OF INVESTIGATIONS

##### BASE METALS (COPPER, LEAD AND ZINC)

###### *R735: Que River: Aberfoyle Management*

The objective was to produce from Que River ore a copper-lead-zinc concentrate suitable for smelting in an ISC blast furnace. Pyrite depression proved a problem in that either zinc was not floated if pyrite was depressed or if zinc recovery was high then the mixed concentrate was high in iron because the pyrite had floated.

The arsenic and antimony levels in the bulk concentrate may cause problems.

###### *R744: Que River: Aberfoyle Management Ltd*

Further test work to produce a copper-lead-zinc concentrate for an ISC blast furnace was conducted on drill core more representative of the ore body than the material used in R735. The use of sodium sulphite showed some improvement in pyrite depression but the presence of cerussite precluded good lead recovery.

**IRON (MAGNETITE)***R836: Kara: McIntyre Mines (Aust) Pty Ltd*

McIntyre Mines Ltd submitted three drill core samples from their Kara exploration for evaluation as a heavy medium for coal washing. After grinding magnetic fractions were removed at various magnetic field strengths with an Eriez drum magnetic separator.

*R839: Kara: Department of Mines*

Following R836 which did not show the difference in magnetic susceptibility expected McIntyre Mines supplied a larger sample of magnetic material which was produced in the Kara mill in April 1983.

By recycling the non-magnetic through the Eriez magnetic separator at gradually increasing field strength eight magnetic products were made. These were each assayed for total iron, ferrous iron and tungsten.

**GOLD***R835: Recovery of Gold from Amalgam Plates: P. Bruce*

Some old copper amalgam plates, from which no more amalgam could be scraped were submitted to see if more gold could be recovered. The plates were surface treated with a paste then heated and descaled to recover the gold. To verify the gold recovered the plates were electrolysed and the anode sludge treated to recover its gold.

*R837: Lisle: Kearns & Taylor*

A sample of concentrate from sluicing on M.L. 35M/71 was submitted for gold recovery. After sizing on 300  $\mu$ m and magnetic separation the gold was recovered for smelting.

*R846: Mathinna Dumps: J. A. Smith*

Mr Smith of Western Australia sampled the dumps on Mineral Lease 3M/83 and wrote a brief report on this work showing his assay results and outlining his gold recovery test work.

**TIN***R822: Composition of Cassiterites: Department of Mines*

The presence of tantalum and niobium in tin concentrates from drilling at Great Northern Plains began an enquiry into how these elements occurred. A number of samples were assayed particularly for tantalum, niobium and zirconium. The constituents of the cassiterites varied with locality.

Appendices cover mineralogy, sizing of Dorset Dredge concentrate in 1967 and the XRF method used for determining trace elements in cassiterite.

**TUNGSTEN***R834: Wolframite Grain Size: Aberfoyle Central Metallurgical Services*

Following favourable indications from work done in R830 a sample from Foley's Zone of the Cleveland Mine was submitted for testing of the method on an actual wolframite lode material. However the high loss of wolframite constituents during the acid attacks (30 per cent) makes the result of doubtful value.

*R841: Kara Mill Survey: Tasminex N.L.*

At the request of Tasminex the Kara Mill was visited, the flowsheet drawn, some samples taken and recommendations made for improving the flowsheet.

Basically the flowsheet contained the same deficiencies that were reported in R772 in 1978.

*R843: Kara Mill Survey: Tasminex N.L.*

Following R841 Tasminex borrowed equipment from this laboratory in order to improve the flowsheet. A trial run with some new items included was made and sampled by laboratory staff. However, the alteration of the nature of some intermediate products affected subsequent operations adversely so that the test was far from ideally conducted.

*R845: Kara Mill Survey: Tasminex N.L.*

The Kara Mill was again sampled after Tasminex had made some alterations to the circuit but it still contained fundamental deficiencies although recovery had improved.

There was a question of the accuracy of tungsten assays investigated and tailing product samples were concentrated to recover the free scheelite. These measures were undertaken to resolve arguments because the Kara Mill was not designed with product sampling in mind hence in all mill surveys there is always present doubts about how representative of the product each sample is.

### RESOURCE DEVELOPMENT, PLANNING AND POLICY BRANCH

The Branch was established on 2 April 1984 and consists of the Deputy Director of Mines, a Mining Engineer, a Senior Geologist and an Executive Officer.

It will be actively engaged in encouraging existing operations along with future exploration and development with the prime aim of ensuring the proper and profitable utilisation of the State's natural resources.

The Branch will serve as a liaison with the private sector for the co-ordination of departmental professional expertise in assisting any section of the mineral industry with technical or legislative problems where such prove to be detrimental to the prime aim.

During the remaining three months of the year the Branch was involved in matters related to offshore oil exploration in the Bass Basin, the exploration for gold near Beaconsfield, the Hellyer prospect, the Cradle Mountain Road link and its effect on the Hellyer prospect.

The Branch participated in the South West Conservation Working Group and several exploration licences were issued for that area. A contribution was also made to the Education Department's Mining Curriculum Project.

Formative discussions were held and preliminary ideas were developed concerning the reconditioning of mining lands and mineral provinces.

The first steps were taken towards the introduction of performance appraisal and personal development for staff throughout the Department.

The Branch co-ordinated the initiation of corporate planning within the Department.

### OBITUARY

Dr Noah Farmer, Senior Geologist, Regional Mapping Section died in Melbourne on 21 January 1984 following a severe heart attack he suffered at his home in Taroona on 26 December 1983.

Noah was born in the County of Durham on 30 June 1933. He graduated with honours from the University of Durham in 1959 and received his Ph.D in 1964 after completing studies at the University of Newcastle-upon-Tyne.

He joined the Geological Survey on 1 February 1970 and during his career with the Regional Mapping Section carried out painstaking and detailed mapping of the Kingborough and Dover map sheets. This work was performed to an extraordinarily high standard and will always remain a fitting testament to this most talented geologist. His services will be greatly missed.

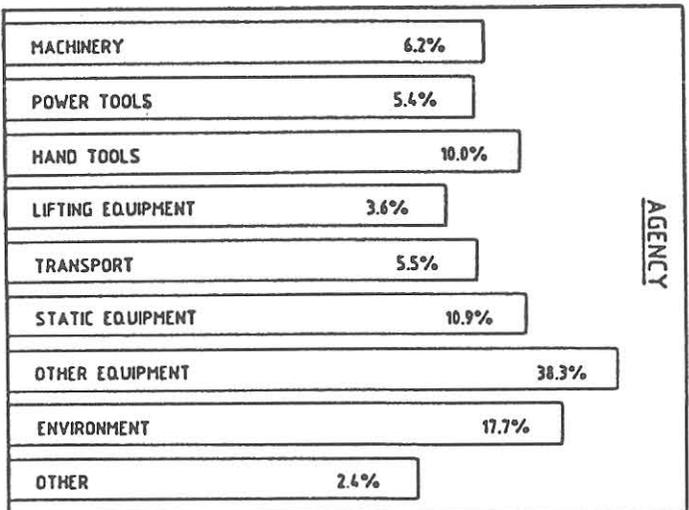
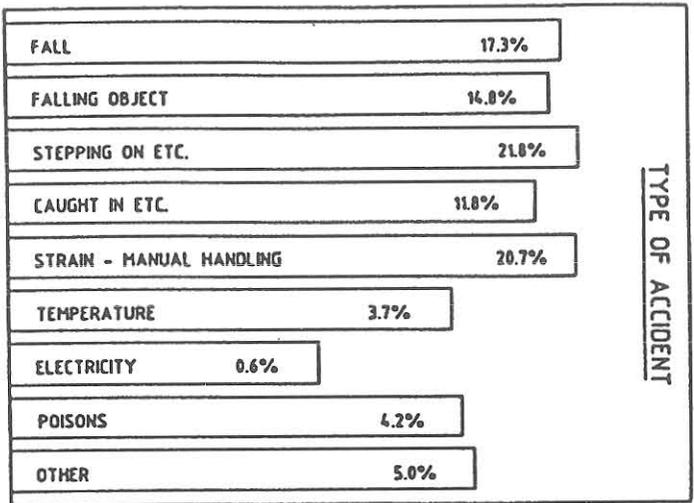
## STATISTICAL TABLES

Table 4. EMPLOYMENT AND ACCIDENTS 1983-1984 (AS1885)

<i>Employer</i>	<i>Man hours Exposure</i>	<i>No. of Injuries</i>	<i>Frequency Rate</i>	<i>Days Lost</i>	<i>Incid. Rate %</i>	<i>Mean Dur. days</i>	<i>No. of Emp.</i>
APPM Tonganah .. ..	25 464	3	117	6	20.0	2.0	15
Cleveland Tin .. ..	322 931	20	62	459	12.3	23.0	163
EZ, Rosebery .. ..	1 474 342	393	267	4 553	45.0	11.6	873
King Island Scheelite .. ..	243 499	6	25	50	4.8	8.3	125
Mt Lyell .. ..	1 347 108	128	95	2 067	17.9	16.1	715
Que River .. ..	188 207	10	53	147	9.4	14.7	106
Renison .. ..	901 733	107	119	989	21.1	9.2	507
Savage River .. ..	757 025	78	103	815	19.4	10.5	403
Tasminex .. ..	43 658	1	23	15	4.3	15.0	23
<b>All mines .. ..</b>	<b>5 303 967</b>	<b>746</b>	<b>141</b>	<b>9 101</b>	<b>25.5</b>	<b>12.2</b>	<b>2 930</b>
Comalco .. ..	2 344 434	176	75	2 792	13.7	15.8	1 285
EZ Risdon .. ..	3 296 504	242	73	3 337	13.4	13.8	1 804
Goliath Cement .. ..	456 221	24	53	484	9.3	20.2	259
Mole Creek .. ..	33 611	2	60	21	11.1	10.5	18
Port Latta .. ..	348 408	10	29	128	5.3	12.8	189
Temco .. ..	682 004	79	116	448	20.5	5.7	385
Tioxide Aust. .. ..	787 739	20	25	199	4.8	10.0	428
Ceramics .. ..	155 720	18	116	162	21.7	9.0	83
<b>All works .. ..</b>	<b>8 104 641</b>	<b>571</b>	<b>70</b>	<b>7 571</b>	<b>12.8</b>	<b>13.2</b>	<b>4 451</b>
Collieries .. ..	248 707	36	145	495	25.9	13.8	139
Quarries .. ..	143 381	16	112	304	20.5	19.0	78
<b>Totals .. ..</b>	<b>13 800 696</b>	<b>1 369</b>	<b>99</b>	<b>17 471</b>	<b>18.0</b>	<b>12.8</b>	<b>7 598</b>

MINE ACCIDENT CLASSIFICATION 1983-84

(Australian Standard AS1885-1976)



PERCENTAGE OF ACCIDENTS

(Log Scale)

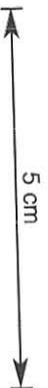
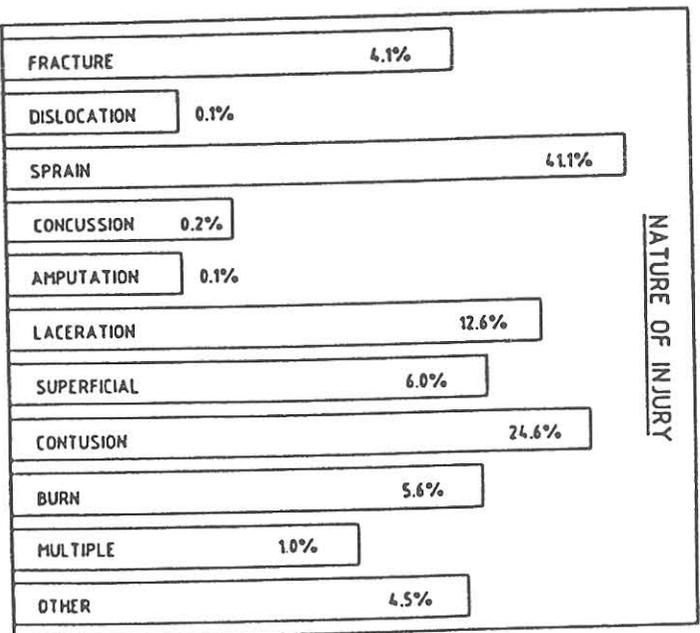
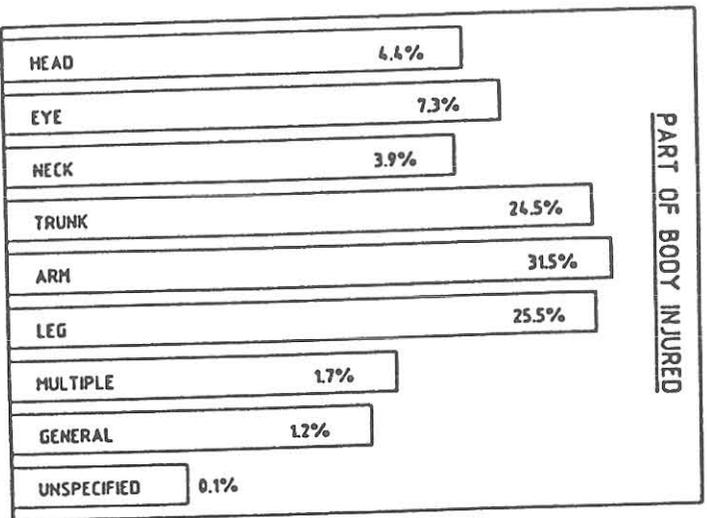


Table 5. CERTIFICATES OF COMPETENCY

The following Certificates of Competency were issued by the Board of Examiners in accordance with the Mines Inspection Act 1968:

Metalliferous Mine Manager's Certificates

By examination *viva voce*

<i>Certificate No.</i>	<i>Name</i>	<i>Date</i>	<i>Mine</i>
289/83	William Peter Frazer	28.7.83	Renison
290/83	Gary Robert Davison	28.7.83	Renison
291/84	Richard Alan Carlton	28.3.84	EZ Rosebery
292/84	Frederick Kingsley Sears	28.3.84	EZ Rosebery
293/84	John Anthony Webber	28.3.84	EZ Rosebery
294/84	James Scott Mitchell	4.5.84	Mt Lyell
295/84	Anthony Terence Rowlands	28.6.84	Mt Lyell

Colliery Manager's Certificate

By examination *viva voce*

<i>Certificate No.</i>	<i>Name</i>	<i>Date</i>	<i>Mine</i>
29/84	Alexander Georges Brown	28.6.84	Duncan

In addition forty-six Crane Drivers' and four Winder Drivers' Certificates of Competency were issued.

Table 6. MINERAL PRODUCTION FOR THE YEAR 1983-1984 FROM TASMANIAN SOURCES

	<i>Cleveland Tin Ltd (1)</i>	<i>Cornwall Coal Co.</i>	<i>E.Z. of Aust.</i>	<i>King Is. Scheelite</i>	<i>Mt Lyell (2)</i>	<i>Que River Mines (3)</i>	<i>Renison Ltd (2)</i>	<i>Savage River Mines</i>	<i>TEMCO</i>	<i>Tasminex</i>	<i>Small Producers</i>	<i>Totals</i>
Cadmium (tonnes) ..	.. ..	.. ..	98	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	98
Cobalt oxide (tonnes)	.. ..	.. ..	2	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2
Copper (tonnes) ..	372	.. ..	1 227	.. ..	23 471	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	25 070
Crocoite ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	Specimens Only	.. ..
Gold (kg) ..	.. ..	.. ..	791	.. ..	570	.. ..	.. ..	.. ..	.. ..	.. ..	3	1 364
Iron Ore (tonnes) ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	2 102 617	.. ..	.. ..	.. ..	2 102 617
Lead (tonnes) ..	.. ..	.. ..	24 882	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	24 882
Manganese dioxide (tonnes) ..	.. ..	.. ..	201	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	201
Molybdenum (tonnes)	.. ..	.. ..	.. ..	20	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	20
Silica (tonnes) ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	26 872	26 872
Silicon compounds (tonnes) ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
Silver (kg) ..	.. ..	.. ..	60 156	.. ..	4 813	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	64 969
Sulphuric acid (mono tonnes) ..	.. ..	.. ..	114 812	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	114 812
Tin (tonnes) ..	955	.. ..	.. ..	.. ..	.. ..	.. ..	3 822	.. ..	.. ..	.. ..	58	4 835
Tungsten (tonnes) ..	.. ..	.. ..	.. ..	939	.. ..	.. ..	.. ..	.. ..	.. ..	256	.. ..	1 195
Zinc (tonnes) ..	.. ..	.. ..	41 098	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	41 098
Coal (tonnes) ..	.. ..	275 716	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	275 716
Peat (tonnes) ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	620	620
Total mined (tonnes)	295 904	453 288	277 453	126 162	1 778 047	166 099	481 684	11 401 176	27 661	113 453	.. ..	.. ..

(1) Aberfoyle Ltd, (2) Renison Goldfields, (3) Production breakdown combined with E.Z. Company.

Table 7. PRODUCTION OF INDUSTRIAL MINERALS (tonnes)

Company	Limestone						Silica
	Kaolin	Agricultural	Cement	Chemical and Metall.	Other	Iron Oxide	
Ballarat Clay Co. (APPM)	20 719	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
A. R. Beams	.. ..	25 142	.. ..	27 287	323	.. ..	.. ..
Benders Spreading Services	.. ..	26 003	.. ..	43 064	.. ..	.. ..	.. ..
Broken Hill Pty	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	26 872
Goliath Portland Cement	.. ..	21 853	372 399	.. ..	4 340	.. ..	.. ..
Mole Creek Limestone	.. ..	8 672	.. ..	47 736	10 202	.. ..	.. ..
Wright Stephenson & Company	.. ..	19 908	.. ..	.. ..	.. ..	.. ..	.. ..
F. R. Lazenby	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	14 880
Dalcoath Mining Company	.. ..	.. ..	.. ..	.. ..	.. ..	1 300	.. ..
Small Producers	.. ..	.. ..	.. ..	42	.. ..	.. ..	167
TOTAL	20 719	101 578	372 399	118 129	14 865	1 300	41 919

Table 8. IMPORTED ORES (tonnes)

Company	PRODUCT (tonnes)				
	Alumina	Lead-Zinc Ore	Ilmenite	Manganese Ore	Phosphate Rock
Comalco (Bell Bay)	233 755	.. ..	.. ..	.. ..	.. ..
E.Z. Co.	.. ..	218 661	.. ..	.. ..	Not reported
Tioxide Aust.	.. ..	.. ..	59 662	.. ..	.. ..
TEMCO	.. ..	.. ..	.. ..	63 850	.. ..

Table 9. PRODUCTION OF CONSTRUCTION MATERIALS 1983-84 (cubic metres)

	Building Stone			Crushed & Broken Stone					Other Road Materials	Gravel	Sand	Brick Clay
	Freestone	Granite	Other	Basalt	Dolerite	Limestone	Sandstone	Other				
Associated Forest Holdings				3 540						50 509		
Brambles Holdings				70 529								
BMG Resources				264 199	49 522	11 325				73 274	21 742	
Shaw Contracting				63 645								
Forestry Commission					12 137		1 710	4 100		378 378		
Hobart Blue Metal Industries					117 287							
Hydro Electric Commission					1 492 124							
C. R. Johnson					16 560					16 172		
Pioneer Quarries					71 985							
Talisker Quarries					54 391							
Dept. of Main Roads								130 405	85 358	360 786	1 406	
Woodfield & French								29 100		5 600		
BHP Company										26 872		
J. Hubbard Partnership										6 900	17 900	
Longford Municipal Council										36 729		
Oatlands Municipal Council										35 861		
Besser Tasmania											47 637	
Small Producers	233	504	54	28 561	14 940	8 905	11 552	29 225	21 989	512 997	114 626	70 211
	233	504	54	430 474	1 828 946	20 230	13 262	192 830	107 347	1 504 078	203 311	70 211

Table 10. CAPITAL EXPENDITURE

The following companies reported the value of Capital Expenditure at mines and works in 1983-84:—

<i>Mine</i>	<i>Items</i>	<i>Value Millions A\$</i>
Tioxide Australia Pty Ltd, Heybridge ..	Modernisation of plant and control systems. Environmental control and energy saving prospects.	3-830
Savage River Mines— Savage River .. .. .	Pit slope stabilisation. Development of dumps and tailings disposal. Rehabilitation of dumps and tailings. Plant control improvements. Community Recreation Centre.	N/A
Port Latta .. .. .	Computer control in plant and anti-corrosion treatment of structural steel at plant loading facilities.	N/A
King Island Scheelite .. .. .	Mill improvements.	0-110
Cleveland Tin .. .. .	Plant replacement and exploration.	0-049
E.Z. Rosebery .. .. .	Underground ventilation improvements. Main and North decline development, underground equipment, change houses and vehicle fleet replacements.	N/A
Renison .. .. .	Community Prospects, Leach buildings and services, underground equipment and development. Mill plant and equipment, laboratory office and workshops equipment. Motor vehicles and mobile equipment.	3-207
Que River .. .. .	Underground development and equipment, surface buildings and community works.	2-384
Mt Lyell .. .. .	Underground development and equipment, mill equipment, Lake Margaret switchgear, housing and vehicle replacement.	3-954
Cornwall Coal .. .. .	Underground equipment, conveyor systems, washery equipment and haulage vehicles.	0-764

Table 11. NUMBER AND AREA OF LEASES AND LICENCES APPLIED FOR DURING THE YEAR TO 30 JUNE 1984

<i>Leases and Licences</i>	<i>Number</i>	<i>Area (ha)</i>	<i>Sluiceways</i>
Coal .. .. .	1	115	.. .. .
Copper .. .. .	40	2951	.. .. .
Clay .. .. .	1	9	.. .. .
Gold .. .. .	13	1064	.. .. .
Minerals .. .. .	6	85	.. .. .
Peat .. .. .	6	859	.. .. .
Sand and gravel .. .. .	22	407	.. .. .
Silver, lead and zinc .. .. .	1	300	.. .. .
Stone .. .. .	26	904	.. .. .
Tin .. .. .	8	158	.. .. .
Easements .. .. .	1	2	.. .. .
Water .. .. .	1	..	2
	126	6854	2

Table 12. NUMBER AND AREA OF NEW LEASES AND LICENCES ISSUED DURING THE YEAR TO 30 JUNE 1984

<i>Leases and Licences</i>	<i>Number</i>	<i>Area (ha)</i>	<i>Sluiceways</i>
Easements .. .. .	3	27	.. .. .
Coal (peat) .. .. .	1	100	.. .. .
Gold .. .. .	2	8	.. .. .
Minerals .. .. .	3	83	.. .. .
Sand and gravel .. .. .	19	387	.. .. .
Stone .. .. .	19	1035	.. .. .
Tin .. .. .	12	370	.. .. .
Water .. .. .	6	..	13
	65	2010	13

Table 13. TOTAL NUMBER OF LEASES AND LICENCES IN FORCE ON 30 JUNE 1984

<i>Leases and Licences</i>	<i>Number</i>	<i>Area (ha)</i>	<i>Sluiceheads</i>
Bauxite	5	183	...
Clay	16	318	...
Coal	9	3 469	...
Copper	6	1 294	...
Crocoite	1	4	...
Dolomite	4	126	...
Gemstones	4	67	...
Gold	48	2 671	...
Granite	4	12	...
Iron ore	12	3 528	...
Kaolin	1	340	...
Limestone	10	1 243	...
Marble	1	8	...
Minerals	40	6 098	...
Peat	2	172	...
Sand and gravel	130	8 089	...
Silica	10	728	...
Slate	1	84	...
Stone	133	7 701	...
Silver, lead and zinc	18	895	...
Tin	315	14 961	...
Wolfram and tin	9	191	...
Water	76	...	779
Easements	92	1 949	...
	947	54 131	779

Table 14. TOTAL NUMBER OF ALL TYPES OF PROSPECTING RIGHTS HELD AS AT 30 JUNE 1984

<i>Mining Tenement</i>	<i>Number</i>	<i>Area</i>
Exploration Licences	117	25 325 km <sup>2</sup>
Special Prospectors Licence	1	24 km <sup>2</sup>
Miners Rights/Water Rights	3	6 ha
Prospectors Licences	31	650 ha
Permits to explore for Petroleum under Petroleum Act 1967	8	1022 blocks
Permits to enter and search on Private Land, including Owners Rights	1	510 ha

Table 15. LICENCES, PERMITS AND APPROVALS ISSUED FOR THE IMPORT, MANUFACTURE, STORAGE, USE AND SALE OF DANGEROUS GOODS

Licences to Keep Dangerous Goods	2489
Licences to Sell Explosives and Safety Cartridges	176
Licences to Sell Fireworks	314
Magazine Licences	113
Import Licences	41
Licences to Convey	18
Licences to Manufacture Dangerous Goods	6
Exemptions Granted	5
Plans Approved	331
Licence to Manufacture Explosives	2
Gas Suppliers Licence	3
Shotfirer's Permits Issued	54

Table 16. IMPORTS OF FLAMMABLE LIQUIDS

<i>Product (tonnes)</i>	<i>Bell Bay</i>	<i>Burnie</i>	<i>Devonport</i>	<i>Hobart</i>	<i>Total</i>
Av Gas .. .. .	1 751	..	..	17 627	19 378
L.P. Gas .. .. .	6 490	..	8 740	7 037	22 267
Motor Spirit—Regular .. .. .	3 640	2 834	4 066	11 185	21 725
Motor Spirit—Premium .. .. .	71 981	31 119	48 119	122 316	273 535
A.T. Kerosene & Jet .. .. .	10 551	..	..	12 530	23 081
L. Kerosene .. .. .	..	..	304	400	704
Bitumen Feed Stock .. .. .	..	..	..	28 435	28 435
A.G.O. & Distillate .. .. .	44 482	37 863	37 719	43 397	163 461
Heating & Fuel Oil .. .. .	25 719	8 920	23 875	25 148	83 662
Total tonnes per Port	164 614	80 736	122 823	268 075	636 248
Number of Tanker Ships	31	12	26	32	101

Table 17. IMPORTS OF EXPLOSIVES

<i>Product</i>	<i>Burnie</i>	<i>Currie</i>	<i>Wynyard</i>	<i>Total</i>
Ammonium nitrate for ANFO (t)	3 436	..	..	3 436
Blasting Explos. Class 1.1.D (cartons) .. .. .	37 442	282	..	37 724
Propellants Class 1.1.C (cartons)	..	..	197	197
Detonators Class 1.1.B (cartons)	2 220	73	..	2 293
Detonating Fuses Class 1.1.D (cartons) .. .. .	224	..	..	224

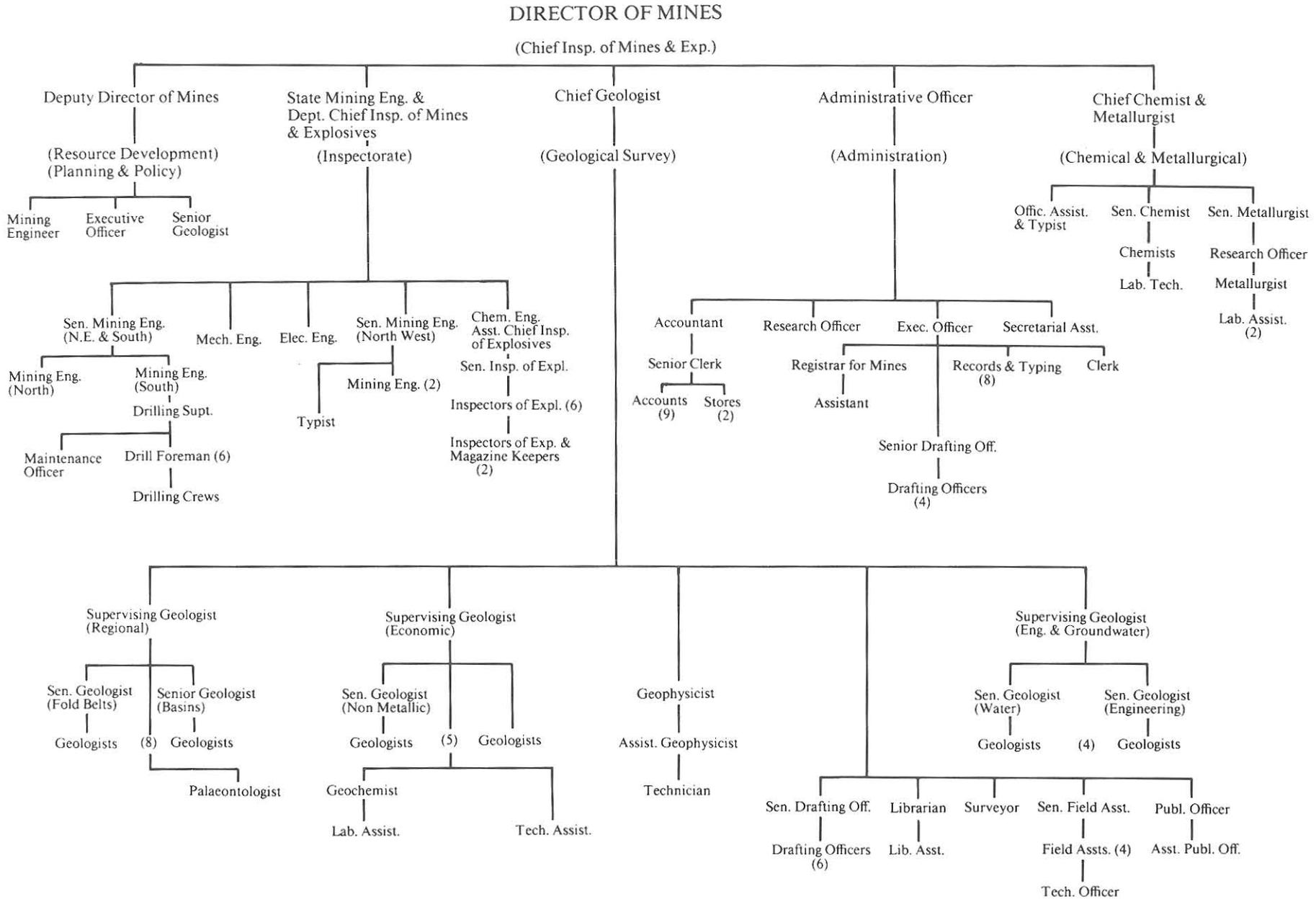
Table 18. ACTS ADMINISTERED BY DEPARTMENT OF MINES

Aid to Mining Act 1927
Coastal and Other Waters (Application of State Laws) Act 1982
Dangerous Goods Act 1976
Department of Mines (Investigations) Act 1972
Director of Mines Act 1951
Gas Franchises Act 1973
Hobart Town Gas Company's Act 1854 and 1857
Iron Ore (Savage River) Agreement Act 1965
Launceston Gas Company's Acts 1858, 1859 and 1885
Mineral Resources Act 1951
Mines Inspection Act 1968
Mining Acts 1929 and 1958
Mount Cameron Water-Race Act 1926
Mount Read and Rosebery Mines Limited Leases Act 1916
Petroleum (Submerged Lands) Acts 1967 and 1982
Ringarooma and Cascade Water System (Agreement) Act 1947
Underground Water Act 1966

Table 19. STAFF AS AT 30 JUNE 1984

Administration .. .. .	38
Mines and Explosives .. .. .	21
Geological Survey .. .. .	48
Chemical & Metallurgical .. .. .	15
R.D.P. & P. .. .. .	4
Diamond Drilling .. .. .	16
Mt Cameron Water Race .. .. .	2
Others .. .. .	3
TOTAL	147

Table 20. DEPARTMENT OF MINES ORGANISATION CHART



## FINANCIAL STATEMENT

## SUMMARY OF EXPENDITURE FOR THE YEAR ENDED 30 JUNE 1984

	1982-83 \$000	1983-84 \$000
Consolidated Revenue Fund		
Expenditure by Appropriation Division 39		
Agency Resource Summary		
Administration		
Salaries and Payments related to Salaries	630	725
Departmental Expenses	205	232
Other expenditure	..	50
	<u>835</u>	<u>1 007</u>
Mines Inspection		
Salaries and Payments related to Salaries	564	629
Departmental Expenses	93	100
Other Expenditure	700	710
	<u>1 357</u>	<u>1 439</u>
Geological Survey		
Salaries and Payments related to Salaries	1 216	1 355
Departmental Expenses	291	367
Other Expenditure	38	8
	<u>1 545</u>	<u>1 730</u>
Chemistry and Metallurgy		
Salaries and Payments related to Salaries	340	357
Departmental Expenses	33	50
Other Expenditure	9	..
	<u>382</u>	<u>407</u>
Resource Development, Planning and Policy		
Salaries and Payments related to Salaries	..	38
Departmental Expenses	..	3
Other Expenditure	..	..
	<u>..</u>	<u>41</u>
Total Consolidated Revenue Fund Expenditure	<u>4 119</u>	<u>4 624</u>
Loan Fund		
Capital Expenditure by Appropriation Act		
Agency Resource Summary		
Administration	2	27
Mines Inspection	166	126
Geological Survey	102	113
Chemistry and Metallurgical	6	29
Resource Development, Planning and Policy	..	..
Total Loan Fund Expenditure	<u>276</u>	<u>295</u>
Trust Fund		
In accordance with the provisions of the <i>Public Account Act 1957</i>		
Special Employment Related Programme Act		
Salaries and Payments related to Salaries	..	35
Other Expenditure	..	1
	<u>..</u>	<u>36</u>
Deposit Account		
Deposits Refunded	49	30
	<u>49</u>	<u>30</u>

**SUMMARY OF EXPENDITURE FOR THE YEAR ENDED 30 JUNE 1984—continued**

	1982-83 \$000	1983-84 \$000
Community Employment Programme		
Salaries and Payments related to Salaries	..	5
	..	5
Australian Atomic Energy Commission Research Grant		
Travelling Expenses	..	1
Other Expenditure	..	2
	..	3
Mining Trust Fund		
Aid to Mining Loans	72	5
	72	5
Mt Cameron Water Race Suspense Account		
Salaries and Payments	36	32
Other Expenditure	1	1
	37	33
Ringarooma and Cascade Water Suspense Account		
Interest on Loan	2	2
	2	2
Total Trust Fund Expenditure	160	114
Total Expenditure from All Sources	4 555	5 033

**SUMMARY OF REVENUE FOR THE YEAR ENDED 30 JUNE 1984**

	1982-83 \$000	1983-84 \$000
Consolidated Revenue Fund		
Public Works and Services		
Drill Hire	358	123
Survey Fees	2	3
Geological Services	8	12
	368	138
Lease Rentals and Fees		
Lease Rents under the Mining Act	150	157
Fees under Petroleum (Submerged Lands) Act	21	18
Sale of Maps and Publications	17	14
Other Fees under the Mining Act	324	339
	512	528
Territorial Revenue		
Royalty on Iron ore Pellets	301	312
Sale of Government Property	15	2
Storage of Explosives and Flammable Liquids	52	50
Mineral Royalties	1 780	..
Metallics	..	1 751
Sand and gravel	..	74
	2 148	2 189
Other Sources		
Miscellaneous	..	3
	..	3
Total Revenue from Consolidated Revenue Fund	3 028	2 858

**SUMMARY OF REVENUE FOR THE YEAR ENDED 30 JUNE 1984—continued**

	1982-83 \$000	1983-84 \$000
Loan Fund		
Repayments	21	4
Total Revenue from Loan Fund	<u>21</u>	<u>4</u>
Trust Fund		
Deposit Account	42	63
Total Revenue from Trust Funds	<u>42</u>	<u>63</u>
Mining Trust Fund		
Loan Repayments	14	22
Total Revenue from Mining Trust Fund	<u>14</u>	<u>22</u>
Mt Cameron Water Race Suspense Account		
Sale of Water	10	8
Total Revenue from Mt Cameron Water Race Suspense Account	<u>10</u>	<u>8</u>
Forfeited Deposits	..	10
Total Revenue from Forfeited Deposits	<u>..</u>	<u>10</u>
Total Revenue from Trust Funds	<u>66</u>	<u>103</u>
Total Revenue from All Sources	<u>3 115</u>	<u>2 965</u>

### REPORT OF THE MOUNT CAMERON WATER RACE BOARD FOR THE YEAR ENDED 30 JUNE 1984

THE MINISTER FOR MINES,

We submit the report of the Mount Cameron Water Race Board for the year ended 30 June 1984. It was a difficult year because of a decline in the demand for water, reduced tin production and lower rainfall. The Manager, Mr N. Petrie, and one channel keeper were employed full-time. Only the Musselroe Mine worked. It employed three persons not all of whom were full-time.

Several small breaks and two large breaks occurred in the race and were mended. Four persons were employed under the Commonwealth Wage Pause programme for six months. They were engaged in scrubbing, forking and removing trees from close to and across the race between the Chum Dam and Gladstone. The town water column was dug up, cleaned and replaced.

As there are now no mines taking water from the race system and because of the contraction of the tin industry with no prospect of a recovery, the Board will suggest to the Minister that the Act be repealed and the Board be wound up as soon as possible.

There is no requirement for continued operation of the race system for mining purposes. Its use as a domestic supply system for Gladstone is totally uneconomic.

H. Murchie—Chairman  
V. Wood—Member  
K. R. Davey—Member

## MOUNT CAMERON WATER RACE SUSPENSE ACCOUNT T753

### STATEMENT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 30 JUNE 1984

	1983	1984
<i>Receipts</i>	\$	\$
Appropriation Act 1982-1983		
(Loss 1981-1982) .. .. .	26 454.22	..
Appropriation Act 1983-1984		
(Loss 1982-1983) .. .. .	..	27 607.58
<i>Sale of Water</i>		
Fixed scale .. .. .	9 552.00	6 552.00
Royalty scale .. .. .	..	..
Domestic .. .. .	..	992.00
Balance to next account .. .. .	27 607.58	25 276.79
	63 613.80	60 428.37
<i>Payments</i>		
Balance from last account .. .. .	26 454.22	27 607.58
Salaries wages and pay roll tax .. .. .	36 093.77	31 945.96
Car allowance .. .. .	500.00	500.00
Travelling allowance .. .. .	143.83	304.93
Maintenance .. .. .	397.74	69.90
Other expenses .. .. .	24.24	..
	63 613.80	60 428.37

## REPORT OF THE RINGAROOMA AND CASCADE WATER BOARD FOR THE YEAR ENDED 30 JUNE 1984

THE MINISTER FOR MINES,

We submit the report of the Ringarooma and Cascade Water Board for the year ended 30 June 1984.

Inspections of the Mt Paris Dam were made by the Minister and Director of Mines. Several inspections were made of the Mt Paris and Cascade Dams by the manager and engineers of the H.E.C., the Rivers and Water Supply Commission and the Department of Mines.

Work carried out at Mt Paris consisted of scrubbing the wall and removing pipes and framework from the valves area.

After several unsuccessful attempts the block was finally removed from the valves of the Mt Paris. It was a rough shaped block of wood placed in the bell intake of the valve pipe and held in place by a sheet of iron and wooden pegs. This proved the dam was deliberately blocked. After removal, the water level was at the lowest possible height until the underground tunnel can be cleared. An unknown person screwed the valves down and placed a lock and chain on the valves of the dam causing it to almost half fill before the situation was noticed. As a consequence this area is now frequently inspected.

The Cascade Dam has been visited on occasions and debris was removed from the flood gate. Trees have been cut ready for removal when the water rises. A lock and chain were placed on the operational valve but these were cut by unauthorised persons and taken.

The Board is concerned at the vandalism experienced during the past year and believes that effective caretaking is necessary if the dams are to be preserved for alternative use.

H. Murchie—Chairman  
N. P. Edwards—Member  
K. R. Davey—Member

## RINGAROOMA AND CASCADE (WATER) SUSPENSE ACCOUNT T754

### STATEMENT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 30 JUNE 1984

	1983	1984
<i>Receipts</i>	\$	\$
Appropriation Act 1982-1983 (Loss 1981-1982) .. .. .	1 675.63	..
Appropriation Act 1983-1984 (Loss 1982-1983) .. .. .	..	1 987.62
Balance to next account .. .. .	1 987.62	2 132.30
	3 663.25	4 119.98
<i>Payments</i>		
Balance from last account .. .. .	1 675.63	1 987.62
Allowances .. .. .	150.00	179.56
Interest on Capital Cost .. .. .	1 837.62	1 952.80
	3 663.25	4 119.98



*The Goliath Portland Cement Company Limited's cement manufacturing plant and limestone quarry at Railton.  
Photo courtesy Goliath Cement.*