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REPORT ON

ASBESTOS INDUSTRY IN AUSTRALIA

- Kinds of Asbestos and Their Uses.-

- By -

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MINERAL RESOURCES SURVEY BRANCH

ASBESTOS INDUSTRY IN AUSTRALIA

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- Kinds of Asbestos and Their Uses. -

For trade purposes four kinds of asbestos may be recognised and it is essential to distinguish between these since the principal uses of each kind are somewhat different:-

	<u>Trade Name.</u>	<u>Mineralogical Name</u>
1.	Strong white fibre. White asbestos.	Chrysotile.
2.	Blue fibre. Blue asbestos or Cape blue.	Crocidolite.
3.	Weak white fibre. Amphibole.	Anthophyllite, tremolite and actinolite.
4.	Yellowish or grey- ish fibre. Amosite.	Amosite.

1. Strong White Fibre - Chrysotile: This asbestos is white to pale green in colour and usually occurs as short fibre with considerable tensile strength but long fibre is also found. Its principal use is in the manufacture of asbestos cement products.

2. Blue Fibre - Crocidolite: Blue asbestos is preferred for most filtration uses especially of acid solutions and in the manufacture of yarns, ropes and cloths. Both short and long fibres occur but the average length of blue fibre available is commonly longer than that of Chrysotile. A length of blue fibre up to and exceeding 1 inch is quite common. Opinions differ regarding the relative tensile strengths of Chrysotile and Crocidolite and some manufacturers have stated that Crocidolite does not possess sufficient tensile strength to be used in the manufacture of asbestos cement sheets. One of the largest prospective producers and consumers of blue asbestos however considers that a satisfactory sheet can be made, incorporating a fair percentage of blue asbestos.

3. Weak White Fibre: In this class the fibres are harsh, brittle and weak and therefore unsuitable for spinning or weaving or for the manufacture of asbestos cement sheets. This asbestos has a limited use chiefly for insulation purposes.

4. Amosite: So far as known this variety of asbestos occurs only in South Africa. It is used blended with Chrysotile in the manufacture of asbestos cement sheets.

- Australian Sources of Supply -

Present information indicates that asbestos occurs in commercial quantities only in New South Wales, Tasmania, South Australia and Western Australia. The most important deposits are in Western Australia and Tasmania.

New South Wales. There are many records of the occurrence of asbestos in New South Wales all associated with serpentine areas. The principal localities for Chrysotile are Woods Reef in the Barraba district and Yulgilbar (Baryulgul) on the Clarence River, North Coast district.

During the period 1918-1923 the Woods Reef deposits were opened up for a production of 2,478 tons of asbestos. The records show that at Woods Reef the milling rock constituted slightly less than half the total rock quarried and that an extraction of five per cent. of the milling rock was effected. The average length of the fibre recovered was $\frac{3}{4}$ of an inch. There has been no production since 1923.

In recent years there has been a small production from the Baryulgul area by Messrs Wunderlich Limited.

Amphibole asbestos occurs in the Gundagai district and in the Orange district. The quantities produced are small, recent producers being P.H. Smith, South Gundagai and Fletcher Bros., Orange.

Tasmania. Chrysotile occurs at three localities in this State; Andersons Creek in the Beaconsfield district, the Zeehan-Renison Bell district and Asbestos Point on the southwest shore of Macquarie Harbour. The Andersons Creek deposits were worked from 1917-1919 for a production of 442 tons of asbestos from the quarrying of 48,854 tons of rock and the milling of 4,414 tons of selected fibre-bearing rock. Thus the fibre recovered represented somewhat less than one per cent. of the rock quarried. The bulk of the fibre recovered was from $\frac{1}{8}$ to $\frac{3}{4}$ of an inch in length. There was also a production of two tons in 1937 and a small production in 1938 and 1941. A fair amount of prospecting has been done on the deposits at Asbestos Point on the southwest shore of Macquarie Harbour, but no worthwhile production has as yet resulted therefrom.

Following a prospecting campaign a subsidiary of the Colonial Sugar Refining Company, known as Tasmanian Asbestos Pty. Ltd., has been formed to work a deposit about $5\frac{1}{2}$ miles northeast from Zeehan. This company hopes to be able to produce 1,000 tons of asbestos during the current year.

South Australia. Chrysotile, crocidolite and amphibole asbestos are found in South Australia.

Chrysotile of good quality occurs 7 miles by road from Cowell Jetty in the Hundred of Minbrie, County of Jervois. Asbestos occurs with secondary serpentine developed in a magnesium limestone which is recrystallised as a greenish-white marble as a result of metamorphism by numerous intrusions of pegmatite. Production has been very small. The locality has been the subject of many reports all of which suggest that the amount of fibre available is small. In normal times, when there might be a demand for the serpentinitised limestone as a building stone, some asbestos could probably be recovered as a by-product.

Several deposits of Crocidolite are known in South Australia, the most important of which occurs 8 miles north-northeast of Robertstown in the Hundred of Bright, County of Eyre. Apparently because of its fineness and lightness the Crocidolite from this locality possesses the property of becoming dispersed and remaining suspended in water like a flocculent precipitate.

So far as can be ascertained the only recent producer is the Flinders Range Asbestos Company of Adelaide.

Western Australia. Chrysotile asbestos has been recorded from a number of places in the Pilbara and West Pilbara Goldfield and there has been a small production from these areas during recent years. Names and addresses of producers are not known, but these could be obtained from the Under Secretary for Mines, Perth.

The principal locality for Amphibole asbestos is Bindi Bindi on the Miling Line, 138 miles by rail north of Perth.

Reserves available are probably large and the deposit has recently been taken over by a progressive company, Associated Engineers Limited, Perth, which is paying some attention to selection of different grades of fibre.

The blue asbestos deposits of the Hamersley Range, which are approximately 200 miles south of Roebourne are very extensive and a high grade fibre is produced.

A subsidiary of the Colonial Sugar Refining Company, known as Australian Blue Asbestos Limited has recently taken over the principal leases and hopes to produce about 3,500 tons of fibre during the current year. Another producer, the General Construction Company Limited, Perth, estimate that they will produce 700 tons of blue asbestos from the Hamersley Range, during 1944.

- Middlemen and Processors -

The principal firms handling supplies of Australian crude asbestos are -

Minerals Limited, Sydney.

McLeod & Company, Sydney.

Minerals (Vic.) Pty. Ltd.,
Melbourne.

S.N. Rodda & Co. Pty. Ltd.,
Melbourne.

W.H. Brewer Pty. Ltd.,
North Melbourne.

Tucks Asbestos Manufacturers,
Melbourne.

The principal firms engaged in the processing of asbestos or in the manufacture of asbestos cement products are -

Sheets, roofing, etc.

James Hardie & Co. Pty. Ltd.,
Sydney and Melbourne.

Wunderlich Limited,
Sydney and Melbourne.

Spinning.

Australian Asbestos Pty. Ltd., Sydney.

Weaving. Australian Asbestos Pty. Ltd. are equipped with the necessary plant for production of a cloth 12 inches wide, but owing to the difficulty experienced in obtaining supplies of the requisite fibre from overseas have discontinued operations.

British Brake Lining Pty. Ltd., Sydney, have recently installed looms and hope to commence weaving an asbestos fabric at an early date for the manufacture of woven brake linings and friction materials.

Gaskets. Negotiations are proceeding between Harris Washers & Gaskets, Melbourne, and James Hardie & Co. Ltd., Sydney, regarding the production of 1/16" to 1/4" sheets with a smooth surface on both sides for the manufacture of gaskets and power seals. Supplies of this board are only available from overseas, and it is suggested that satisfactory production of an Australian substitute would permit a considerable expansion in the local manufacture.

Packings. Ramsay & Treganowan Ltd., Melbourne, advise that braiding machines are expected from the United Kingdom at an early date, and squaring machines from a local supplier, which will enable production of plaited and twisted packings to commence in the near future.