REPORT ON THE ASBESTOS DEPOSIT AT ASBESTOS POINT

MACQUARIE HARBOUR

LOCATION & ACCESS

Asbestos Point is situated on the south-western shore of Macquarie Harbour near the south-eastern extremity of this large inlet. Macquarie Harbour consists of a large bay centrally situated on the West Coast of Tasmania.

Strahan is the chief settlement and port on the shores of this Harbour, Interstate ships maintain a regular service with other ports in Tasmania and those of the nearest mainland States. Strahan is connected by rail with Burnie and thence with the remainder of the State by Government railways.

The only means of access to Asbestos Point is by motor launch from Strahan.

TOPOGRAPHY

Asbestos Point is a narrow rocky point jutting out into Macquarie Harbour in a general northerly direction. A low range of hills continues southwards from the Point and rises to heights of 200 to 300 feet above sea level.

There is only one creek of any appreciable size and it has been locally termed Main Creek. It rises with two chief head-water streams in the low hills south of Asbestos Point. These unite some 50 chains south of Asbestos Point, the larger branch coming from the south-west and the other from the south. The creek enters the small bay immediately to the west of Brickyard Point, the next point to the south-east of Asbestos Point.

About 100 chains south of Asbestos Point, the Muddy Bay Creek flows easterly into Birch Inlet.

The district is covered by a thick growth of trees, scrub &c.

GEOLOGY

Asbestos Point is occupied by Ultra-basic rocks (pyroxenites, serpentine, &c.) and similar rocks can be traced inland for a distance of 80 to 90 chains. These rocks form a narrow belt ranging in width up to three or five chains, and appear to occur as a long and narrow dyke. Owing to the dense covering of scrub, it is difficult to determine the exact bearing of this dyke, but it has a general north and south trend, the exact bearing being apparently 10 degrees east of south.

The rocks to the west of the dyke consist of slates and fine-grained basic rocks. The outcrops of the latter are very much weathered and identification is difficult, but they are apparently either tuffs or volcanic rocks. On the beach west of Asbestos Point, black slates, followed by thickly bedded slates and tuffs are exposed. To the south of the junction of the south-western and

southern branches of Main Creek dark grey slates, schists, and tuffs (?) are exposed in the creek bed. Still further south in Muddy Bay Creek, greenish schists are exposed.

The rocks to the east of the dyke are fine to medium grained gabbros with similar tuffs (?) to those on the western side of the dyke. These are best exposed on the western side of Brickyard Pt. Similar rocks are also exposed some 10 chains up the Main Creek from its mouth.

The series of slates,, tuffs and basic igneous rocks is geologically an old one and probably forms part of the Proterozoic or the Lower Palaeozoic systems. The ultrabasic dyke is apparently intrusive into them and is probably to be correlated with similar occurrences of Devonian age in other parts of the State.

ECONOMIC GEOLOGY

A few old mineral leases were formerly held in the vicinity of Asbestos Point. One was granted as a Copper Reward and one as an Asbestos Reward. A short tunnel on the west side of Brickyard Point remains as evidence of some of these former workings. Leachings of oxide of iron and the presence of pyrite were the indications that probably induced the driving of the tunnel.

All the other mining works in the vicinity of the Point have been carried out in connection with the Asbestos occurrences and as far as can be seen, this is the only mineral likely to prove of commercial importance in the immediate vicinity.

The veins of asbestos are associated with serpentine, pyroxenites and partly serpentinised pyroxenites. The dyke was apparently a pyroxenite which became partly altered to serpentine. A relatively small proportion of the fresh, unaltered pyroxenite remains and this occurs as large "boulders" and small irregular bodies in the dyke. The greater part of the dyke now consists of serpentine with irregular bodies of partly serpentinised pyroxenite. The serpentine is generally dark green to black in colour, though a small amount of the yellow variety (probably weathered retinalite) occurs 45 chains south from the Point. Both foliated and massive types of serpentine occur.

Generally the asbestos veins are confined to the serpentine part of the dyke. Near the Point, however, it appears from statements made that asbestos was obtained from the serpentinised pyroxenites, the surface of which are stained a brownish red by oxidation and weathering.

The asbestos occurs in its usual form of short, irregular and narrow veins in the containing rock. The cross-fibre type with the fibres at right angles to the direction of the vein, is the usual one. This type of fibre occurs, in veins ranging in width up to 1½", but the usual width ranges from one-sixteenth to three-quarters of an inch. Even in one vein

the width is not constant and so the above figures must be regarded as general ones only. The colour of the fresh cross fibre in the solid is a pale yellow, but on separation it yields a mass of very white fibres.

Slip fibre also occurs, the fibres being parallel to the direction of the veins or the joints in the serpentine. The fibre is much longer than the cross fibre, but is not present to the same extent.

Picrolite, the variety of serpentine resembling slip fibre is also present. It can be distinguished by its stony nature, greater hardness, and inability to produce fibre.

MINING DEVELOPMENT

The mining work carried out consists entirely of surface work such as trenches, open cuts &c. These will be described starting from Asbestos Point and taking them in order to the south.

On the Point there is a T shaped trench with the leg pointing to the north. The north-south part is 20 feet long and the eastern portion of the east-west part is 12 feet long. From these it is stated that 78 bags of asbestos (one cwt. bags) were obtained, and it is estimated that 10 to 12 cub. yds. were excavated.

One chain inland and on the eastern shore an irregular open cut has been made. It is roughly triangular the sides being 20' long with an opening to the east. The depth is about 10 feet, and it is estimated that approx. 100 cub. yds. were removed. It is stated by the owners that several tons of asbestos were obtained from this cut. The veins ranged in width up to ¾" and in some places were closely spaced in the rock.

About 2 chains from the Point an east-west trench was cut for a length of two chains. It is stated that a few bags of asbestos were obtained, but its soft and discoloured nature (due to weathering) prevented further work.

At 8 to 9 chains, a prospect hole revealed serpentine with narrow veins of asbestos.

At 12 chains an east-west trench has been cut for a distance of 40 feet and to a depth of 6 to 10 feet. At the eastern end, a shallower open cut extends to the south. Altogether some 30 to 40 cub. yds. must have been removed and it is stated that 58 bags of asbestos were obtained. The rock is chiefly serpentine with a small amount of partly serpentinised pyroxenite. The asbestos veins range in width up to ¾ inch. Picrolite is also present.

At 13 chains, a prospect hole shows massive serpentine with numerous narrow veins of asbestos ranging in width up to ¼ inch.

At 14 chains, a long and deep trench exposed massive serpentine with a large amount of picrolite. In the shallower western end, the rock was weathered and partly altered pyroxenite.

At 28 chains, in a small easterly flowing tributary of Main Creek, the No. 1 outcrop occurs. It consists of greenish foliated and massive serpentine, with numerous narrow veins of asbestos. Vughs of calcite or dolomite occur, while talc is also present, the pyrite along the joint planes. A prospect hole above this face shows foliated serpentine with picrolite.

At 32 chains, the No. 2 outcrop occurs in an old trench. It consists of weathered and foliated serpentine with weathered picrolite at the face.

At about 36 chains, cascades occur in the Main Creek. Up to this point, the creek had been flowing to the east of the dyke, but from here to the south it crosses the dyke obliquely. The cascades show fine-grained gabbro (partly saussuritised), pyroxenite and foliated serpentine. The rock where broken shows similar types with narrow veins of asbestos present. This locality is at or near the eastern side of the dyke.

At 43 chains, a trench on the west bank of the creek shows light coloured greenish serpentine with cross and slip fibre asbestos. The same belt is exposed in the creek bed past 46 chains, with narrow veins of cross and slip-fibre asbestos.

At 45 chains, the bedrock consists of foliated serpentine with many narrow veins and one vein ranging up to 1½ inches in width.

At 46 chains the track leaves the creek and runs southerly while the creek trends to the south-west. Two prospect holes were sunk in the flat along the creek, the eastern exposing serpentine and the western one exposing weathered specimens of the older rocks.

Along the track, pyroxenites are seen at 51 chains, but nothing can be seen further south owing to the soil and scrub. From 66 chain mark, however, the southern branch of Main Creek is parallel to the track and serpentine and altered pyroxenites on the west side of the dyke can be traced for a distance of approx. 20 chains.

It would appear from the above that asbestos veins have been proved to exist at numerous places between Asbestos Point and the 45 chain mark. Asbestos has not been found further south, but this does not necessarily imply that it does not exist, because exposures are few and little work has been done.

ECONOMICS OF ASBESTOS MINING

Asbestos veins are short and narrow and are irregularly distributed through the parent rock and it is therefore difficult if not impossible to sample the rock to determine its content of asbestos. The only reliable figures are those determined after a considerable amount of mining and extraction has been performed.

This proportion of asbestos to rock mined is, of course, the important factor in asbestos mining and the chief one upon which the commercial success or otherwise of the operations depend.

The experience in other countries is as follows:-

(1) Canada. Cirkel (No. 69 Mines Branch, Canada, p. 93) states:-

"On an average the milling rock may be taken as from 30 to 60 per cent of all rock mined. Rock to be considered fairly good milling quality should yield from 6 to 10 per cent of fibre."

(2) New South Wales. Ruggatt (Mineral Industry of N.S.W., 1910, p.199) states:-

"The milling rock constitutes slightly less than half the total rock quarried, and an average extraction of 5 per cent of the milling rock is effected."

With regard to the Asbestos Point deposit the following figures are very approximate. The production figures are those supplied by Mr. Bantick who worked the deposit in 1914. The figures were given in terms of bags and converted into tons on the statement of Mr. Bantick that each bag contained 1 cwt. The quantities are rough estimates of the excavations and include the total amount of rock removed. They are necessarily approximate for many reasons including the fact that the contour of the surface was not known.

	PRODUCTION OF FIBRE	QUANTITY EXCAVATED	PROPORTION OF FIBRE
Trench at Point	78 bags 3.9 tons	20 tons	19.5%
Open Cut	Figure doubtful	190 tons	-
Trench Inland	58 2.9	56 tons	5.2%

It must be pointed out that the above represents the proportion of land picked fibre of long length, short fibre having been rejected according to Mr. Bantick. The above proportion represents fibre to total rock excavated and no estimate of milling ore was possible. If the above proportions be proved to extend over an extent of the serpentine, it is obvious that the deposit is one likely to be of commercial importance. It must be pointed out, however, that further work should be performed to verify these figures and test the serpentine over a larger area before it can be assumed that a deposit of commercial importance exists.

TREATMENT

It cannot be considered that any proved reserves of asbestos-bearing serpentine exists

and therefore any discussion or treatment or erection of plant is premature at the present time.

PRODUCTION IN AUSTRALIA

Three Australian States have been producers of Asbestos.

(1) Western Australia. The production has been chiefly from the Pilbara field and is as follows:-

WESTERN AUSTRALIA.		
	Tons	Value
1908	40.00	£ 1,600
1909	2.83	154
1919	53.00	1,443
1920	156.50	7,286
1921	235.35	13,581
1922	181.68	7,600
1923	114.85	4,032
1924	73.58	2,206
1925	51.00	1,641
1926	105.04	2,728
1927	10.80	304
	1,024.63	£42,575

(2) New South Wales. The production from this State has been chiefly from the Barraba field and is as follows:-

NEW SOUTH WALES			
	Ore	Tons Asbestos	Value
Prior to 1919	-	-	1030
1919	1727	155	1985.5
1920		644	7404
1921		945	23,736
1922		561	11,418
1923	4570	204	4,267
1924		Nil	
1925		Nil	
1926		4	20
1927		Nil	
			48,861.5

(3) Tasmania. The production from the Beaconsfield district has been:-

	Milling Rock & Asbestos.	Value
	Tons	£
1899	200	363
1900	128	113
1901	46.5	45
1916	15	30
1917	271	271
1918	2,854	5,008
1919	51	1,275
		£7,105

IMPORTS

It will be seen from the above that there is practically no p roduction of asbestos in Australia at present. Considerable quantities are imported in the form of fibre and also as manufactured products. The statistics of imports given below are taken from the Customs returns.

The total imports of Crude asbestos during year 1927-28 were 103,827 cwts. valued £115030.

The imported asbestos was obtained from the following countries.

United Kingdom	500	cwts.
Canada	24,125	"
Ceylon	2,237	"
Cyprus	5,575	"
South Africa	69,179	"
Other British Countries	57	"
Italy	857	"
Madura	1,180	"
United States of America	52	"
Other Foreign Countries	65	"

There is no import duty on Crude Asbestos.

PRICES

It will be observed from the above tables the prices paid for Australian asbestos have a considerable range. The average price for the W.A. material was £41 per ton, but from 1924 on the price was about £30 per ton.

The price for the N.S.W. asbestos averaged £16.7 per ton, but the price in 1923 was £21 per ton.

The prices in other countries appear to be considerably higher than the above, but in the absence of definite information as to the length and nature of the Australian asbestos it is difficult to make proper comparison.

The average price of the imported crude asbestos is seen, from the above table, to be slightly over £22 per ton.

CONCLUSIONS AND RECOMMENDATIONS

The asbestos deposit at Asbestos Point is associated with a dyke of serpentine and serpentinised pyroxenites. The dyke has a width ranging up to five chains and has been traced for a length of one mile.

Veins of asbestos have been proved to exist in it at numerous places along the length of 45 chains, but appear to be most numerous near the Point and near the 45 chain peg. The veins range in the thickness from ⅛ inch to 1½ inches, but the greater number have a thickness less than ¾ inch. The asbestos appears to be of good quality and colour.

Very little developmental work has been carried out. From statements made as a result of these limited operations, but which cannot be officially verified, it would appear that the proportion of asbestos in the rock is sufficient to render the deposit one likely to be of economic importance.

The most important matter requiring attention at present is to determine the extent of rock carrying such proportions of asbestos. It cannot be said at present that any proved reserves of profitable rock exist and it is recommended that furtur work should be devoted to determine this factor.

The question of erection of a treatment plant should not be considered until the above factor has been determined and sufficient reserves proved to warrant the erection. In the meantime, crude asbestos of longer fibre could be hand picked and exported, or large parcels of milling ore forwarded to determine the proportion of asbestos of both long and short fibre.

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