FILE NAME: Colonial Sugar Refinery (CSR)

DATE: 1956

DOC#: CSR031

DOCUMENT DESCRIPTION: Book Excerpt - South Pacific Enterprise: The Colonial Sugar Refining Co. Ltd

SOUTH PACIFIC ENTERPRISE

THE COLONIAL SUGAR REFINING COMPANY LIMITED

ANGUS AND ROBERTSON

SYDNEY LONDON MELBOURNE WELLINGTON

First Published 1956

CONTENTS

ET IN MONOTYPE BASKERVILLE

UND IN AUSTRALIA BY HALSTEAD PRESS, SYDNEY

USTRALIA FOR TRANSMISSION BY POST AS A BOOK

SUGAR today is not only a foodstuff. Sugar is the basis of a group of industries as yet so new that by most people their extent, in some cases even their existence, is scarcely realized. Thus it would surprise the average Australian at breakfast to realize that the company which provided the sugar that he has just put into his tea also produces enough building material to cover the inside and outside of a quarter of the 80,000 houses which Australia builds each year. He would be surprised, too, to realize that the same company provided part of the raw material of the aspirin in his medicine cupboard and of the paint (as he would call it) on his refrigerator. "What have these things to do with sugar?" he might ask, "Have building materials and chemicals any connection with the cane fields of Queensland and northern New South Wales?" The answer is "Yes. These are logical developments."

Businesses, if they are successful and efficient, follow a consistent pattern of development, aimed at the profitable use of the whole of the basic raw material. There are many instances, the simplest summed up in the old joke that the Chicago meatworks use all of the pig but the squeal.

It is apparent that a big business seeking ways of expansion will be interested in certain kinds of development adapted to its character and capacity. Thus it will not generally be interested in small-scale batch production suited to small enterprises but it will be interested in mass production by continuous processes. Such processes usually demand large capital expenditure and a high degree of "know-how", and therefore their development has generally to await the interest and attention of large companies. Because these ventures are costly, because they take a long time to start and an even longer time to become profitable, it is obvious that they must be of the kind which can take a natural place in an expanding national economy, neither too soon nor too late. When the time, the place and the raw material are perfectly matched is the moment to move. Traditionally, expansion of C.S.R. interests has been with solid, basic lines of permanent value to the community. Opportunistic or short-lived products and luxury lines have been avoided.

A look at the situation in the twenties and thirties shows how these forces acted in Australia. Megass, the fibre which remains after the sugar cane has been crushed, is used in firing the boilers of the sugar mills but sometimes its production outruns need. In mills in northern New South Wales there is normally a surplus of megass towards the end of the crushing season; but even when there is not a great surplus the megass is worth only the cost of enough coal to replace it. When both coal and transport were inexpensive megass from northern

New South Wales was available at low cost. A second by-product, molasses, had been used since last century as the raw material of industrial and potable alcohols in the company's distilleries.

In the late twenties and early thirties all these matters had long consideration. Large-scale expansion of sugar production, as such, in Australia or Fiji was not feasible because markets were then saturated. The company had even explored the possibility of entering the industry in other countries, such as India, but for various reasons it decided not to do so. Expansion by a diversification of interests through improved use of the by-products, megass and molasses, appeared to be the logical procedure. How these aims were eventually realized it is the purpose of this chapter to describe.

There is no theoretical difficulty in making use of megass as a raw material. Vegetable fibres have been used for centuries in making paper and, in more recent times, cardboard. Although it was apparent that it was possible to use megass for a variety of purposes, the immediate question which faced the company in the twenties was whether it was the basis of any product which would command a long-term market, justifying the high initial expenditure.

Developments in the United States pointed the way. Builders were demanding a wallboard of light weight at least 6 ft. to 8 ft. long and 3 ft. to 4 ft. wide. Such a board would facilitate building and meet the demand for more homes, factories and offices, a demand which increased with the lifting of the depression. Boards of this size could not be obtained from sawn timber but overseas manufacturers were making them in factories from fibres of softwoods by a process akin to that used in the manufacture of paper and cardboard. Australia lacks softwoods and twenty-five years ago no one had succeeded in using the short-fibred Australian eucalypts commercially for any such purpose. The company's officers, however, had noted that some overseas manufacturers were using sugar cane fibres to make their wall boards. Here, then, was a potential use for the Australian market; it remained to be determined whether it was also economically practicable.

A survey of the Australian market demand for wallboards (which had been imported from the United States in small quantities from 1930 onwards) showed that from 10,000 to 15,000 tons of cane fibre would be needed yearly as raw material if the industry attained the per capita consumption of the United States. The fibre was available and it was decided to proceed with the project. After further study of overseas development the company erected a small pilot plant at Macknade Mill in Queensland in 1936. This plant pulped megass

and made wallboard by a batch process which gave sufficient information for the company's technicians later to design a continuous process for a factory. The pilot plant operated for a couple of years on a semi-commercial scale. Both insulation board, similar to present-day "Cane-ite", and hardboard, similar to "Timbrock", were manufactured in 7 ft. by 4 ft. sheets and sold to the building trade in Queensland and New South Wales. At the same time intensive investigation took place in the central research and design departments in Sydney.

In 1937, having acquired a good background of laboratory research, practical operation of a pilot plant, and understanding of market requirements, C.S.R. sent two officers of the company to study the large-scale manufacture of wallboard in the United States, in England and on the continent of Europe. Information from all these sources was pooled and studied. Upon this basis a large factory was designed and erected at Pyrmont on the Sydney harbour-front, adjacent to the company's refinery, distillery and central workshops. The plant for this factory, with the exception of some very specialized equipment, was made in Australia. In 1939 it began production of the low-density wallboard known as "Cane-ite" at the rate of 10,000,000 square feet per annum. Today it can produce 40,000,000 square feet per annum.

All contingencies had been provided for—except the inevitable hazards of economic change. In the years since 1939 the Australian cost structure has altered radically. Coal is now four times its price in 1939. Transport costs between Sydney and the northern New South Wales sugar mills have risen even more steeply. Megass is therefore in great demand as mill fuel and consequently is no longer as attractive as it was as a raw material for building boards. Because of this much research has been done to find other raw materials and today, to keep costs to a minimum, "Cane-ite" is made from a mixture of megass, special grades of waste paper, and pulp made from inferior types of Australian eucalypt trees which have no other economic use. Because of these technical developments and despite the heavy increased cost of the raw material—megass—on which the industry was based, "Cane-ite" today, at double its price in 1939, has retained a favourable position in the building industry's cost structure. Plaster, asbestos cement, fibrous plaster and Portland cement are more than two and a half to three times their 1939 price; bricks and plywood are three to four times their 1939 price.

In all about £585,000 has been spent on the "Cane-ite" project and the venture has been successful. It has been successful because it was a logical development; the company had the "know-how"

C.S.R. BUILDING MATERIALS MADE IN AUSTRALIA.

"CANE-ITE" Wallboard.

Made largely from megass, which is the fibre left over when the juice has been crushed from sugar cane.
Used as an insulating interior wallboard. Sold in standard-size, white-ant proofed sheets, with a variety of finishes.

"TIMBROCK" Hardboard.

Made from Australian scrub eucalypts and other local hardwoods not normally suitable for the building trade.
Used for interior walls and fittings. It is flexible, grainless and splinterless, and is supplied in a variety of lengths of 4′ 6″ width.

"GYPROCK" Wallboard.

Made from a core of aerated gypsum plaster sandwiched between layers of special tough-fibred chipboard.
Used for interior walls and ceilings where its strength, smooth surface and ability to make a completely flush joint are an advantage.

"FIBROCK" Building Products.

Made from white and blue asbestos, the latter mined by Australian Blue Asbestos Ltd. in the Hamersley Ranges of Western Australia.
Used for corrugated roofing, guttering and down-pipes, flat exterior wall sheets, exterior wall sidings and accessories.

"CANE-ITE" ACOUSTI-TILES.

Made in 12-inch squares from "CANE-ITE". Each tile has 484 small holes in its surface to absorb sound.
Used on the walls and ceilings of offices, shops, factories and telephone booths to reduce noise. The tiles are easy to fit and attractive in appearance.

C.S.R. FLOOR TILES.

Made in 17 colours to allow an almost unlimited variety of combinations. A flexible floor tile *Vinylflex* made from vinyl plastic has recently been introduced in Australia.
Used where a fresh modern effect is required, or where traffic is especially heavy in shops, theatres, factories and offices.

C.S.R. BUILDING PLASTERS.

Made in N.S.W. by Concord Plaster Mills and in Victoria by Brunswick Plaster Mills from locally-mined gypsum.
Used for the making of fibrous plaster sheeting by many small manufacturing organizations. Also used by plasterers for special effects.

and the capital to carry it through; a market potentially existed and has been successfully established.

This was the beginning and thus the company entered the building materials business, perhaps the most highly competitive in Australia. When the "Cane-ite" factory was erected it had been decided to manufacture only insulation board and not to proceed further with the manufacture of the hardboard developed at Macknade because the Masonite Corporation of America was sponsoring the erection of a hardboard factory at Raymond Terrace, near Newcastle. C.S.R. undertook the sale and distribution of Australian Masonite and this arrangement continued for five years.

With a sales organization set up to sell "Cane-ite" and hardboard throughout Australia it was natural that the company should seek other types of basic building materials to make and sell. An Australia-wide sales organization is expensive and the more products that can be sold by the same sales force the cheaper the selling overhead becomes per unit. The more lines of the same type handled by the same sales organization the better pleased is the prospective customer who can perhaps order from one source much of the material he requires.

It was realized that the building trade, despite its basic nature, is liable to severe fluctuations in demand for various products. To guard against this American manufacturers commonly follow a policy of producing a number of complementary materials—internal and external linings, roofing materials and floor covering, for example—and the company kept this aspect firmly in mind. The wisdom of such a policy has become apparent in recent years when, despite a drop in demand for one or other of the Building Materials Division's products, the total sales volume has steadily increased, as shown in the accompanying graph of sales volume.

Among other materials investigated were a fireproof asbestos cement board and a plaster wallboard of the type very popular in the United States and known there as gypsum wallboard. The gypsum wallboard (now marketed as "Gyprock") had its immediate origins in the needs and shortages of World War II. Despite the priorities they enjoyed the Army and the Allied Works Council both suffered by reason of the acute shortage of building boards of all kinds. American army authorities, accustomed to the use of gypsum wallboard, proposed to Commonwealth officials that it be manufactured here. Officers of the company who had been overseas had observed that in the United States this board had superseded others and that it was the cheapest wallboard there obtainable. When the American suggestions were

supported by the Allied Works Council the company decided upon the construction of a plant at Concord, a suburb of Sydney.

The company had, in fact, decided some years earlier that when the time was ripe it would manufacture gypsum board in Australia and as a beginning had concentrated on obtaining the raw material, gypsum, needed to manufacture plaster. Leases were taken up throughout New South Wales. A plaster mill was erected in 1941 and the gypsum was processed for the manufacture of plaster of Paris for sale to the building trade and for other special purposes; thus plaster was already being manufactured and marketed while the wallboard factory was being designed and erected. Although plant and equipment for a gypsum wallboard factory could normally have been obtained from the United States it was Commonwealth policy during the war to import as little plant as possible. The company therefore designed and built the whole of the necessary equipment itself.

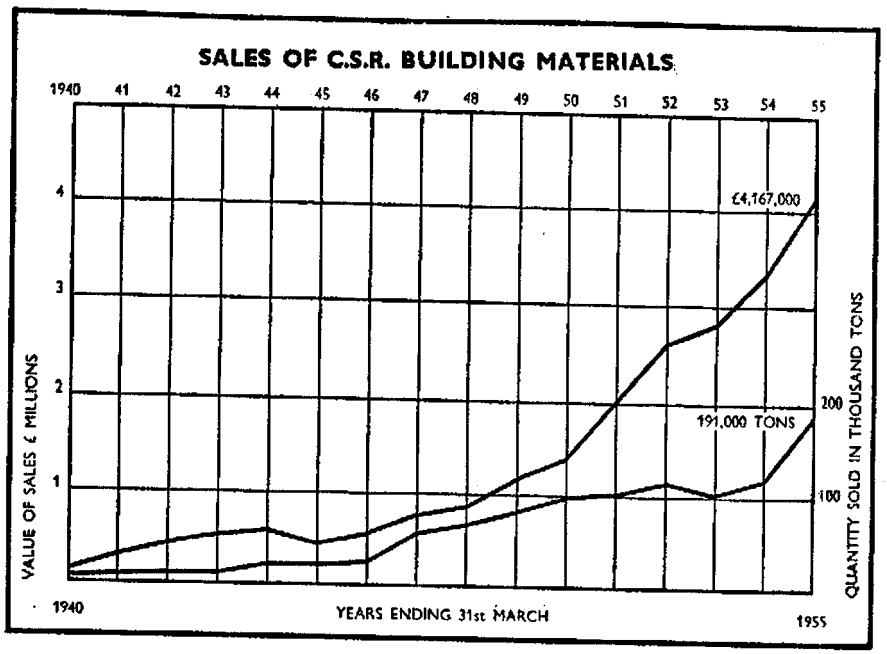
By making "Gyprock" the company has helped to develop Australian raw materials—gypsum for the inside of the board, wood pulp for the paper surfaces. To date, however, "Gyprock" has not been in such keen demand as have some other building boards—a contrast to experience overseas where similar gypsum wallboards are the most popular of all, partly because of their strength, rigidity and flame-proof qualities and particularly because of their low cost. The cost in Australia will decrease with the increased production which will follow demand as the building trade becomes more accustomed to the use of the product. Meantime the plaster side of the business has been successful and sales have steadily increased. A successful plaster business has also been built up in Victoria.

About the time that the company began to take an active interest in gypsum wallboard it also became interested in other types of fire-proof board and so turned its attention to asbestos cement products. On this occasion a small asbestos cement plant was bought as a going concern and developed by the company's engineers.

The heart of the manufacturing problem in this case is the supply of asbestos, for the other materials are readily available in Australia. When the company first became interested in the project Australia imported all her requirements of asbestos, 15,000 tons per annum, from Canada and South Africa. Concerned that such an essential raw material had to be imported, the company set out to see whether a suitable fibre could be obtained locally. In making asbestos cement, the asbestos fibre is mixed with Portland cement and water and later the water must be drained and pressed from the mixture. The fibre used must, therefore, drain easily. Three main kinds of asbestos are

used in Australia: blue crocidolite asbestos, which is long-fibred, drains readily in the manufacturing process, and is very strong; white asbestos, which is short-fibred, drains poorly and is slightly weaker; and amosite asbestos, which is short-fibred, drains well but is weak and is the cheapest of all asbestos fibres.

The company's inquiries led first to Tasmania and there it took leases of asbestos deposits. In these leases it mined a short-fibred white asbestos. But production ceased after the war as the deposits were not extensive—indeed, there are no known large deposits of white asbestos in Australia (though there are a considerable number of quite small deposits) and there are no known amosite deposits at all. There remains blue asbestos or crocidolite which occurs in the Hamersley Ranges in Western Australia and, in particular, at Wittenoom Gorge, 700 miles north-east of Perth and 100 miles south-west of Marble Bar, a place legendary in Australia for its extreme heat and its isolation from the rest of the continent. It was to this forbidding area, with mere tracks leading to it, that the company turned. The



Sales of the company's building materials have steadily risen since the company entered this field. The increase in value of sales has been substantially influenced by monetary inflation. But total sales expressed in tons (arrived at by adding together tonnages of the several kinds of building materials) show a steady overall increase in physical quantity of products sold.

development of the area is one of the romantic stories of industrial enterprise and, incidentally, a very considerable contribution to national wealth in strategic minerals.

The story of Wittenoom asbestos deposits begins with early prospectors, the lone and hardy pioneers of many mineral fields, picking at outcrops of asbestos. The method of occurrence itself is odd. The asbestos occurs in horizontal veins averaging half an inch in width, though sometimes measuring as much as two inches. Several of these veins occur over a total seam height of two feet. The economic mining of such a narrow horizontal seam in extremely hard rock was a new problem for Australia.

Here, then, was the first problem to be solved. Company officers in a world-wide search for a suitable mining technique visited iron mines in Alabama, silver-lead mines in Canada, asbestos mines in Rhodesia and diamond mines in South Africa. They adapted to Wittenoom conditions the various techniques examined. The company brought mining consultants from America. It brought Canadian and American shift bosses on a short-term basis to instruct the miners in the details of the methods to be used. The company could not get sufficient Australian miners to go to this isolated spot and, when the war was over, miners were brought from Italy, Holland, Austria and other countries to make up the numbers needed.

In the beginning there was no town. Transport and communication facilities were poor. Much of the early equipment had to be flown from Perth, 700 miles away. Even today transport is not easy. Stores normally come from Perth by sea to Point Samson, the port of Roebourne. Thence trucks take the stores 200 miles south-east to Wittenoom. Dry weather roads connect to Roebourne, Port Hedland, 150 miles north, Marble Bar, 100 miles north-east and Meekatharra, a railhead 300 miles south. There is an airmail to Perth three times a week and urgent messages may be radioed to Port Hedland for relay by telegraph to Perth.

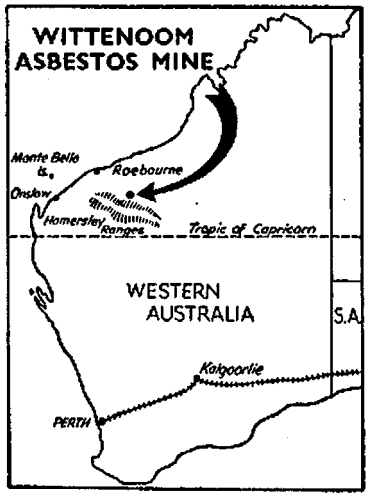
The original settlement was in a narrow gorge near the mine and the mill. Later it was replaced by a second settlement, seven miles away on the tableland outside the mouth of the gorge. Today this is the town of Wittenoom, largest inland town in the north-west and completely dependent on the blue asbestos industry. Largely built by the Commonwealth and Western Australian Governments, which recognized the importance of the industry and sponsored its early development, its present population is about 750, of whom about 200 are children. The people of Wittenoom have all the facilities of civilization—electric light, running water and septic installations for their homes, a large

general store, a cinema, cafe, hotel and school. There are tennis courts equipped for night tennis, a recreation room, a racecourse and sports ground, a modern hospital, a bus service to the mine and a regular air service to Perth. Such is life in the outback today when large national development makes necessary the provision of such naturally expensive amenities.

The Wittenoom ore is processed in a mill near the mine and blue asbestos is separated by blowing processes. The product is a strong, free-filtering fibre used by asbestos cement manufacturers to mix with white asbestos fibre. Certain industries use it for its chemical resistance. Thus the battery case in a car may be made from short blue asbestos fibres held together with plastic resin.

The operating company, Australian Blue Asbestos Limited, in which C.S.R. has a 97 per cent shareholding, is increasing the output of the mine and developing a market in competition with such countries as South Africa, which produces 30,000 tons of blue asbestos per annum largely with coloured labour, and Canada, which produces 1,000,000 tons of white asbestos. With steady progress at Wittenoom the cost per ton of the Australian fibre has been halved and additional increase in production will reduce the cost still further. The present aim is an output of 8,000 tons per annum but the deposits are of such extent that, once the industry is firmly established, output could be increased to 30,000 tons per annum or more if necessary.

The situation is not without difficulty, however. The use of Australian



LOCATION OF WITTENOOM

The Wittenoom Gorge asbestos mine of Australian Blue Asbestos Limited is located in the Hamersley Ranges of Western Australia, north of the Tropic of Capricorn.

blue fibre has not yet been accepted by the older-established asbestos cement manufacturers in Australia and the industry has had to depend largely on sales to overseas markets developed during the visits of company officers abroad. The local blue fibre is at present dearer than the particular grades of imported fibre used in Australia and the asbestos cement industry generally does not consider that it should use the Wittenoom product at higher cost although, with the increased production made possible by such use, the price could be reduced to that of comparable imported fibre. After all other means of encouraging local use of Australian blue fibre had been tried, application was made to the Tariff Board in June 1954 for protection by a duty on imported fibre. The company proposed that as long as consumers in Australia used local blue fibre to the extent of 15 per cent of their total usage of asbestos no duty be applied on any asbestos fibre imported, but that, failing this, a protective duty of 40 per cent should be applied. As Australia now obtains from abroad slightly more than 30,000 tons of fibre per annum this proposal would mean that Australia would use about 4,000 tons of blue fibre per annum. It is estimated that the protection requested would increase the cost of asbestos cement products by about 3 per cent only.

The Tariff Board Report tabled in Parliament in September 1955 recommended, however, that no assistance be granted to the industry as it considered the extra cost to Australian industry unjustified and considered protection by the method suggested to be "coercive". It appeared that the Tariff Board made its recommendation without taking account of such matters as the development of a remote area of Australia, the strategic and defence value of the industry, and the benefit to the overseas trade balance given by export of blue fibre and by the saving in imports if local blue asbestos fibre is used in Australia. During the calendar year 1955 sales of blue asbestos fibre to Europe and the United States will amount to 8,000 tons and the credit to the overseas trade balance will be £800,000, almost half of this being in dollar currency.

Irrespective of dollar-earning and contributions to the national stocks of raw materials, all industry, of whatever size, in Australia's north is strategically important. Thus the portion of Western Australia north of the 26th parallel, usually referred to as the North-West, has an area of 527,000 square miles and a total white population of only 8,400. Of this total 2,700 are in the coastal town of Carnarvon on the 25th parallel, leaving only 5,700 in the main north-west area. Wittenoom has become the largest inland town in this area with a population of 750. The asbestos fibre industry has also re-established

the important but lately moribund centre of Roebourne with its port at Point Samson. Shipping services and air services have derived increased revenue. Asbestos production—even at its present stage of development—is directly responsible for 900 additional residents, an increase of about 17 per cent in the population of the main north-west area. Though the figures are small in themselves, these are significant contributions towards solving a national problem. Perhaps it is appropriate that the sugar industry, on which the integrity of north-eastern Australia depends, should have done its share towards the development of the north-west area. By the decision of the Tariff Board, however, continuation of this industry in the North-West will be dependent on finding adequate export markets for the blue fibre produced, while Australia continues to import fibre from abroad to a total value of £3 million per annum.

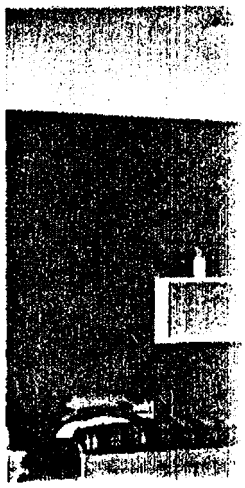
The company's own present use of asbestos is in a wide range of asbestos cement products ("Fibrock" sheeting, sidings and roofing) and in various types of floor tiles including "Vinylflex", a vinyl floor covering previously almost unknown in Australia though popular in the United States and England for a number of years. These tiles, manufactured at Concord, Sydney, are used in shops, offices, factories, hallways, vestibules, theatre entrances, restaurants and homes. In developing their manufacture, C.S.R. leaned heavily for "know-how" on one of the largest manufacturers of building materials in the United States, the Johns-Manville Corporation, with which the company has long had friendly associations.

While the asbestos mining venture makes a colourful story and has interesting and important national implications, it forms only a small part of the company's overall operations in the building materials field. The hardboard manufacturing venture, for instance, has grown to be a big business in itself and has proved an outstanding commercial success. The product, "Timbrock", is a strong high-density hardboard, the natural accompaniment of "Cane-ite", a light low-density board.

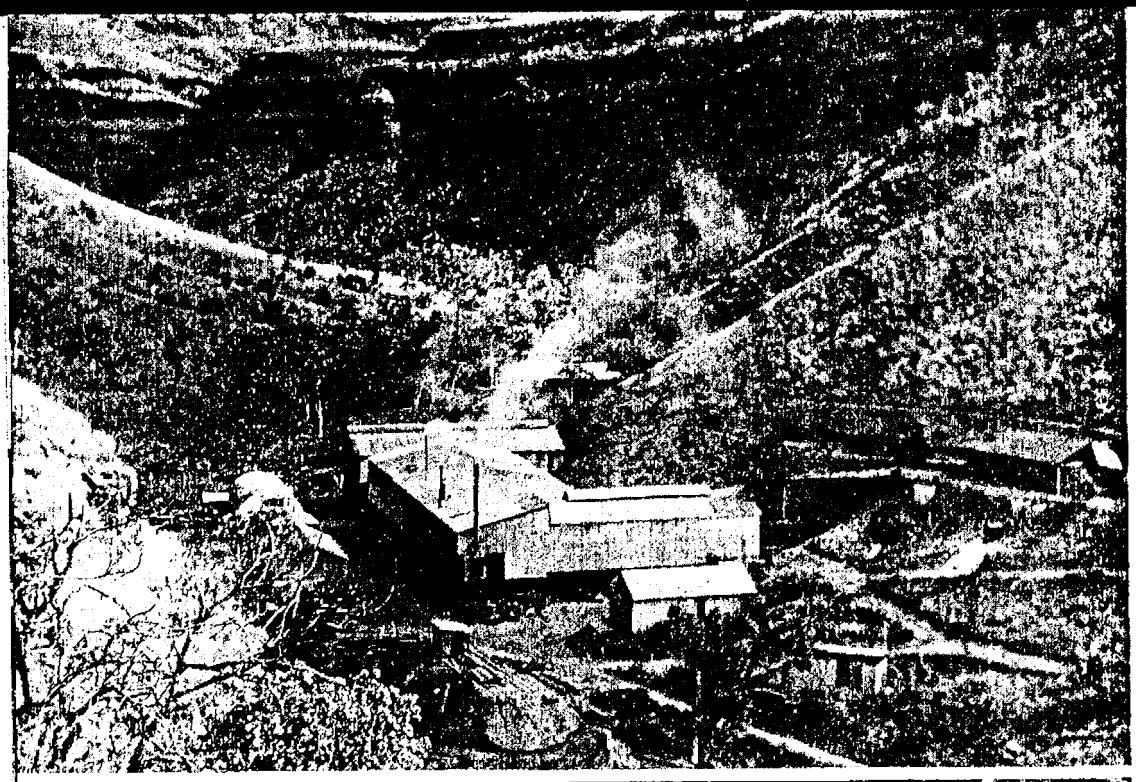
As "Cane-ite" is made largely from megass, so "Timbrock" is made from low-grade eucalypt timber, useless for other purposes. Peculiarly suited to the needs and to the resources of the building industry, hardboard has already achieved in Australia a per capita consumption three times that in the United States. It is in itself a lesson in the results of mass production. When hardboard was introduced to the Australian market after the depression plywood was cheap and hardboard comparatively dear. But with the mass production of hardboard in the war years its price fell, in contrast to the rising prices of the vast majority of products, including its old rival, plywood.

Uses of some C
Mater

Timbrock upper wa
ceiling in the gy
Burwood Domestic
Sydney.



The foyer of the A
Provident Society's
Sydney is paved wi



Asbestos Mining

The mine buildings of Australian Blue Asbestos Ltd. at Wittenoom Gorge, Western Australia. The mine produces high-grade blue asbestos.

Blue asbestos is a long-fibred mineral. This sample of asbestos ore from Wittenoom shows the length of the fibres.

A factory building constructed from C.S.R. *Fibrock* corrugated asbestos cement wall and roof sheets. Down pipes, corner strips and curved roof ridges are also made of asbestos cement.

Below: Acousti-tiles in a