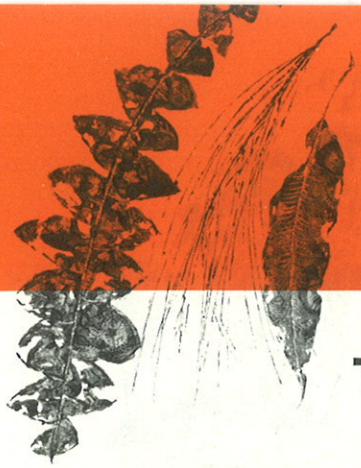

INFORMATION SHEET 26

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THE SANDALWOOD INDUSTRY

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Sandalwood is an aromatic wood which has been valued by the Buddhists for hundreds of years. It is used mainly in a powdered form for the manufacture of joss sticks, which are burnt as offerings during their religious ceremonies. It is also used as a cosmetic in Burma, and has many other purposes in the Far East. An aromatic oil can be distilled from sandalwood, and this is used mainly as a fixative in the manufacture of perfumes. It was valued as a medicine until the advent of penicillin. An Indian sandalwood (*Santalum album*) was originally obtained from the South Pacific in the second century A.D.

Sandalwood, as found in Western Australia, is a shrub with the botanical name *Santalum spicatum*. This shrub is a root parasite, and requires a host plant to live on, usually one of the many wattles (*Acacia* species). Early colonists found the shrub widely distributed over those inland parts of the State known as the Wheatbelt, Eastern Goldfields, and Murchison. Today it is only found in any quantity in the Eastern Goldfields and Murchison.

The first recorded export of this commodity was in 1845 by the early farmers of this State who took up land on which sandalwood grew. They were able to pull the wood and sell it for export and so were able to buy stores while they developed their farms. It is certain sandalwood was exported from the Swan River Colony prior to 1845 from the Port of Fremantle, but the first record shows a sample of four tonnes was shipped from Fremantle to Colombo on the *Vixen*, a schooner of 44 tonnes, in 1845.

By the end of 1846 32 tonnes had been exported at a value of $640. In the year 1847 there was a dramatic increase and the export figures showed 436 tonnes of sandalwood to the value of $8 880 were exported. The following year, 1848, there was another dramatic increase when 1 359 tonnes were exported. Unfortunately this did not continue and there was a slump from 1849 until it again reached a peak in 1861, when the recorded export was 2 670 tonnes valued at $49 890, and it continued at a high level throughout the '60s. It is interesting to note that in 1868 the other timber exports were valued at $1 276 while sandalwood was $52 090! Most of the wood in those times was exported through the ports of Fremantle, Bunbury and Albany.

The sandalwood export trade continued at a reasonable level throughout the remainder of the nineteenth century and into the present century, with the production averaging about 3 000 to 4 000 tonnes per annum. By 1920 a recorded value of $7 535 956 of sandalwood had been exported from Western Australia—a lot of money for those times.

In the early 1920s there was over-production and huge stocks accumulated at Fremantle and in China. The trade had to be regularised. In 1929, the Sandalwood Act was passed and in 1930 four exporting firms were amalgamated to form the Australian Sandalwood Company Ltd. In 1932, the Sandalwood Export Committee was formed, which regulated the production and export of sandalwood. Both the company and committee are still in existence today to continue the policy.

Sandalwood is exported in the form of logs, roots and butts, pieces, chips, powder and shavings. The demand has fluctuated and both the Sino-Japanese and Second World War interrupted the trade.

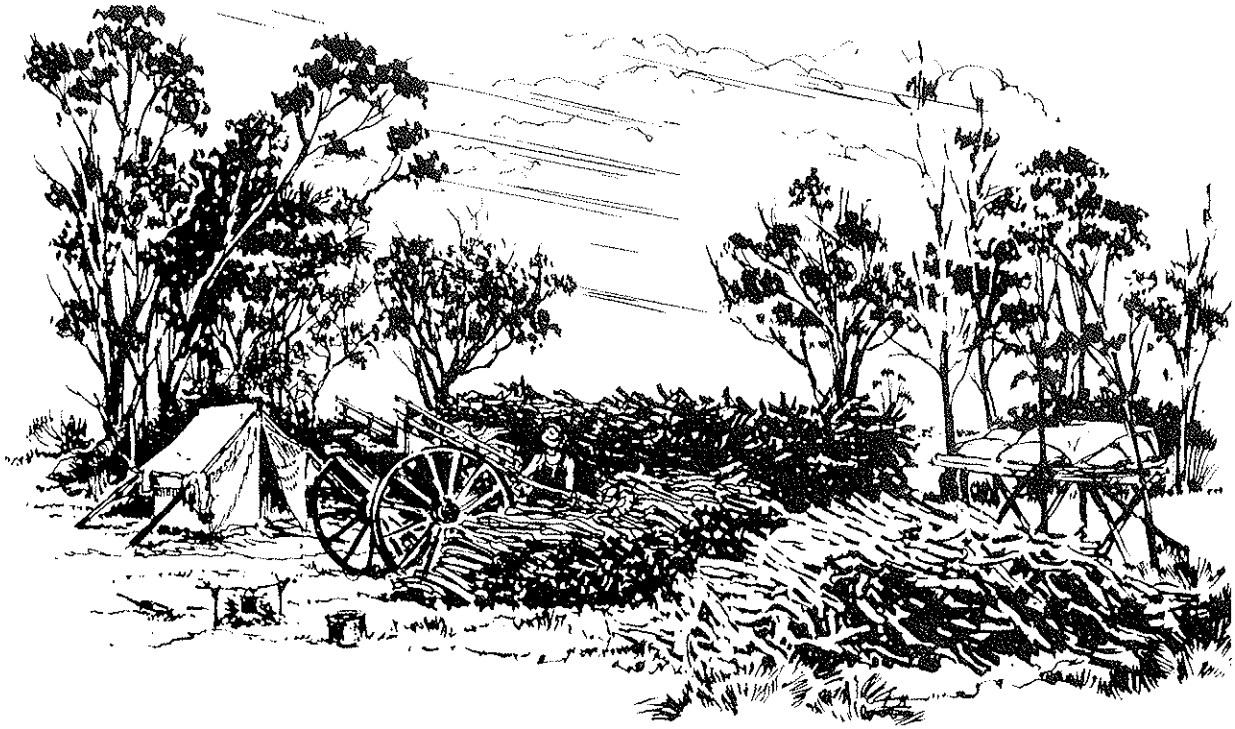
Over the years annual export quantities have varied tremendously, from about 400 to 14 200 tonnes. The average annual quantity exported between 1840 and 1970 was 3 450 tonnes, most of which was green sandalwood. During the last decade, 1970-1980, average annual production has been 1 224 tonnes, and varied between 1 100 and 1 500 tonnes per annum. One significant change during this period has been the very large increase in the amount of dead sandalwood included in these export figures. Approximately 45 per cent of the total exported during the last five years has been dead sandalwood.

Prior to 1919, sandalwood oil distillation was carried out on a small scale only, and was derived from sandalwood obtained from the north-west of the State. Between 1929 and 1968 exports of sandalwood oil varied from 1 800 kg to 5 897 kg per year. All oil production and export ceased in 1971.

Mention has been made of the help sandalwood was to the early settlers. Later in the present century, sandalwood production played a very important part in the gold-mining industry. Many prospectors were also sandalwood pullers and, if they had no money to continue prospecting, they would utilise their knowledge of the bush and the location of sandalwood to obtain permits to pull, clean and haul loads of sandalwood. The proceeds from this would be sufficient to buy stores and provisions for another period of prospecting for gold.

Sandalwood is pulled out of the ground, not felled or cut down, because the roots, butts, stems and branches are all valuable. The wood was originally cleaned down to the heartwood with an adze, but nowadays only the bark is removed. When cleaned it is ready to be transported to the Australian Sandalwood Company factory in Spearwood, near Fremantle, where it is trimmed, sorted and packed for export, mainly to expatriate Chinese in Taiwan, Hong Kong, Singapore, Thailand, Malaysia and Burma.

In order to start production a sandalwood puller must first obtain a licence from the Kalgoorlie Office of the Forests Department, and then an order to accept a given quantity from the Australian Sandalwood Company. These two documents regulate the removal of sandalwood from Crown Land. Restrictions on the removal of green sandalwood include: no removal within a given distance of station homesteads, shearing sheds, stock watering points, and all roads and tracks; no removal of stems with a circumference of less than 400 mm over the bark at a point 150 mm from ground level.



Sandalwood puller's camp. Note the horse's feed up on stilts to keep it clear of inquisitive sheep, etc.

In the early days camels and horses were used to pull the stems out of the ground, and to transport it back to the camp in drays for cleaning and stacking. With the effluxion of time four-wheel drive vehicles, tractors, and trucks have taken their place.

The life of a sandalwood producer always has been, and still is, very hard. Their living quarters were originally just canvas sheets or tents. Water was very scarce and they only had Coolgardie safes to keep the perishable food. Nowadays, usually caravans are used as living quarters, with the advantage of refrigerators. However, water is invariably scarce and sometimes has to be transported long distances to the camps.

The pullers rise early, in the cool of the morning, to go out and locate the wood to be pulled, and usually plan to have sufficient wood back in camp to clean the morning's pulling before boiling the billy for lunch. They go out again for a second load in the afternoon, which they have cleaned before nightfall. They hope to have sufficient for a load of between four and seven tonnes ready within a fortnight to be taken to the nearest railhead. Opportunity is then taken to replenish stores, water and provisions, before returning to the bush. Many only work for about nine months of the year, as, in the hottest months of the year, it is extremely arduous work in the very harsh climate of our inland areas where sandalwood is still available.

Sandalwood regeneration has many practical problems which must be overcome if the industry is to be successfully maintained in the future. The most important of these is the almost complete lack of natural regeneration. Only six examples of this are known to have successfully occurred in the past 100 years, one of which survived only because the seedling was positioned in the centre of the host plant. It was thus protected from grazing stock, both domestic and feral, which find the young plants very palatable.

Another problem associated with regeneration is that, although many of the ripe fruit, which have a reddish-brown leathery outer-coat surrounding the stone, may be found on the ground under the trees, their viability decreases rapidly after two years. A number of consecutive wet years would be required for the complete sequence of blossom, seed-set, germination and establishment to occur which would ensure survival during a time of drought. A wet season, when it occurs, could be used most effectively by combining conditions, so that the association between the sandalwood parasite and its host plants would be well established before the onset of drought.

The first Conservator of Forests, Mr. J. Ednie-Brown, recognised these difficulties and took action by establishing a sandalwood reserve for seed production at Meckering in 1895, and an experimental farm at Pingelly in the same year. Both projects failed due to grass fires, rabbit infestation and later alienation for agriculture.

Sandalwood was again established during the 1920s on 1 630 ha of land ranged near Kalgoorlie, Southern Cross, Kondinin, Narrogin, Collie and Busselton. Sowing was discontinued in the Depression years of the '30s.

Research findings, through 50 years of growth, show that it takes 70 years (± 20) to grow a commercial tree of 127 mm diameter at Kalgoorlie, and 40 years (± 10) at Narrogin. Understanding the association of physiological conditions needed for the propogation of sandalwood in union with its host, and determining scientific techniques to aid this process is an expensive operation. Research institutions must analyse the problems; nurseries must generate and care for the seedlings; and field operations must be launched to put research findings into practical use. With the future of the resource in mind, a sandalwood research institute has been established in Western Australia with funds made available by the Australian Sandalwood Company.

The story of sandalwood is very much part of the history of Western Australia. Next time you pass down the Stirling Highway in Perth, with its fast-moving traffic, and see the present Albion Hotel, remember it was once known as the Half Way House and at times in the late nineteenth century had up to twenty laden wagons of sandalwood outside. The Albion provided a welcome resting place for the labouring horse teams and thirsty teamsters. In the Eastern Goldfields, many of the old sandalwood camps with the tell-tale heap of sandalwood chips can still be seen.

Sandalwood was first exported from Australia nearly 140 years ago, and today the industry still thrives. It has played a vital role in the history of Western Australia, and the fact that it is still shipped from Fremantle is a living link with our past. Places such as the sandalwood research institute are our guarantee that this heritage will be passed on intact to future generations for their use and enjoyment.

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