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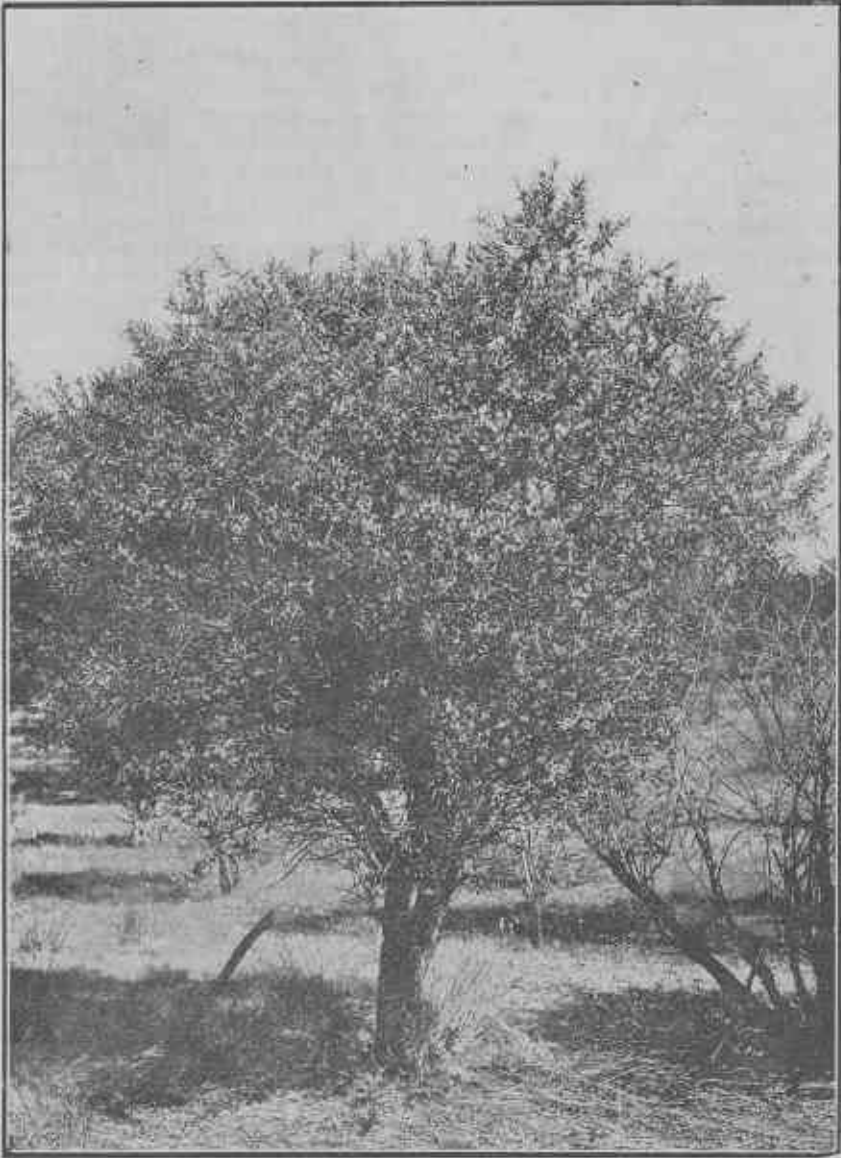
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FORESTS DEPARTMENT.

SANDALWOOD



Issued under the authority of the Minister controlling the Forests
Department, the hon. P. Collier, M.L.A.

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SANDALWOOD.

(*Santalum spicatum.*)

At the present time this species may be found growing as a small tree to a height of 12 to 16 feet, with a diameter of 6 to 8 inches. Before it had been so extensively exploited, specimens reaching a height of 25 feet, with a diameter of 10 to 12 inches, were common in areas of better rainfall, now cleared and cultivated for the production of wheat crops.

In the early days of the State the habitat of sandalwood extended as far West as the Darling Range. In those days the tree played an important part in the development of Western Australia, as it always commanded ready money, by reason of its value as an article of export to China, where it is highly prized and used for ceremonial purposes. The tree has now practically ceased to exist in the Wheat Belt, and present supplies are often hauled in 50 to 100 miles to the railway lines running to gold-mining centres of the interior, so that the benefit of obtaining a commodity commanding ready cash, which tided the wheat farmer over his difficulties in the early days, is now enjoyed by prospectors and others on the goldfields.

The wood varies from light yellow to light brown in colour, and the heartwood is strongly aromatic. It is this latter property which has led to its extensive use by the Chinese in the manufacture of "Joss sticks" for burning in religious ceremonies. In addition, much sandalwood is used for fancy carved woodwork, the making of trinket boxes, and a host of other small articles. Up to the end of June, 1928, 398,000 tons of sandalwood, of a value of £4,529,000, had been exported from Western Australia. Export commenced in 1845.

Until the last few years the total output of sandalwood from Western Australia was exported to the Far East, but, after considerable experimental work, local firms have succeeded in producing a sandalwood oil claimed to be superior to the oil distilled from the *Santalum album* of Mysore, and the rapidly increasing demand for the Western Australian product would appear to bear out this contention. The export value of sandalwood oil, which was £3,704 in 1920, rose to £38,919 in 1928.

Several factors contribute to reduce the effectiveness of natural regeneration. The tree is very susceptible to fire, while the foliage is often eaten by grazing animals, rabbits being particularly destructive while it is in the seedling stage. The usual method of attack is for the rabbit to bite off the seedling within an inch or so of the ground, but seldom is the plant eaten. In the wetter portions of its habitat, where sandalwood was mainly found in association with Raspberry Jam (*Acacia acuminata*), the presence of large quantities of grass accentuated the damage caused both by fires and grazing. Minor damage is caused by leaf-eating caterpillars and certain scale insects.

The frequent association of sandalwood with Raspberry Jam (*Acacia acuminata*) led to investigations which have shown that there is definite root parasitism by sandalwood on the jam. Although jam is by no means the only host of sandalwood, the most vigorous development of sandalwood is found in association with this species. Root parasitism means that the sandalwood roots, instead of searching for water and mineral food material in solution on their own account, have developed the faculty of fastening on to the roots of other species and robbing them of this solution of "raw food material." Unlike a complete parasite, the root parasite takes the food material and manufactures it for its own use in its leaves, like any other plant.

Reforestation measures have been commenced on certain areas on the goldfields. It has been found that, in suitable seasons, *i.e.*, when the rainfall in each of three successive autumn or winter months exceeds one inch, germination is secured by merely sowing the hard-shelled nut in suitable soil. To ensure satisfactory subsequent development, the seed is sown in proximity to some suitable host plant to enable the roots to form connections as soon as possible. Complete protection of plantations from grazing is essential in the early stages, but light grazing may be permitted when the trees are well advanced. Heavy grazing impairs the health of sandalwood directly by damage to the foliage and indirectly by damage to the host plants. Fortunately, on the goldfields, on account of the scantiness of leaf litter, fire protection is not a difficult matter.

Until comparatively recently, the return obtained by the State of Western Australia and the persons employed in the industry has scarcely been in keeping with the value of the commodity. The royalty to the Government was 5s. per ton up to March, 1920, when it was increased to £2 per ton, while the price received by the puller for sandalwood forwarded on rails at port of shipment averaged about £9 per ton. Periodic booms in the trade occurred, which usually reacted to the detriment of the local industry.

Owing to such unsatisfactory conditions, further regulations were gazetted on 30th October, 1923, which have enabled the Government to restrict the export of sandalwood to a quantity which can be regularly absorbed by the overseas market at a greatly increased price. As a result of these regulations, the royalty value to the Government has been increased from £2 to £9 per ton, and, as the quantity pulled from Crown Lands and exported annually is approximately 5,000 tons, the value of the increased royalty rate is apparent.

In order that the sandalwood getter may be protected, payment to the puller for sandalwood of fair average quality is fixed by regulation at £16 a ton f.o.r., Fremantle, free of royalty. All persons pulling, cleaning, and carting sandalwood must be registered at the Forests Department, Perth, in accordance with forest regulations, and may only operate on Crown lands after obtaining an order from one of the firms who hold a license to pull and remove a stipulated quantity of sandalwood per month from Crown lands.