FOREST FOCUS

NO1.

THE TIMELESS FOREST

Seedling, six months after germination

Three-years-old regrowth

Virgin karri forest south of Pemberton

FOREST FOCUS

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April 1970

FOCUS on the Karri Forest

The giant karri *(Eucalyptus diversicolor)* of the south-west of Western Australia—together with the mountain ash of Victoria and Tasmania—has no equal for height and grandeur among the broadleaved species of the world.

Cover:

THE TIMELESS FOREST

Photographed in February, 1970, there is nothing in this picture that would suggest that the scene could not be one of several thousands of years ago.

Among the purest and most magnificent hardwood forest stands in the world, the karri forest's tallest trees eclipse in height all of Perth's modern buildings. The individual karri tree is a masterpiece of natural engineering in its great strength, symmetry and beauty combined with economy of material. Trees up to 286 ft. in height with girths at breast height of 24 ft. have been measured. Girths up to 38 ft. 6 in. have been measured on shorter trees.

Each tree is a highly complicated and well balanced food factory supplying energy to the countless living cells which in turn help man in so many ways. Life on this planet could not survive without trees like the karri and other green plants to provide oxygen and help purify and control the environment.

With the aid of chlorophyll, green plants commence the chain of life by manufacturing their own food from sunlight, minerals, water and carbon dioxide.

Karri is the largest tree in Western Australia and is second only to jarrah in importance. Uses of the timber are numerous. Its strength and stiffness combined with extraordinary long, clean lengths which may be obtained render it unsurpassable for superstructural work.

It is possible to secure karri in larger sections and longer lengths than any other known hardwood in the world.

In beams, rafters, columns, warehouse floor joists and other members where strength is the essential factor, it gives every satisfaction. In many instances karri has replaced oregon for scaffolding planks, where its greater strength has more than offset the increase in weight.

Forests are a regenerative resource, and with modern technology continually seeking and finding more uses for forest produce in the way of cellulose plastics, wood chips, fibre and chemical extracts, the future appears limited only by man's knowledge and ingenuity.

Regeneration

With this high demand for karri, jarrah and many other native timber species, one might well ask what is being done by foresters to regenerate this valuable natural resource.

Together with protecting the forest from the ravages of uncontrolled wildfires and disease, the most important task of karri region foresters is to regenerate cut-over stands.

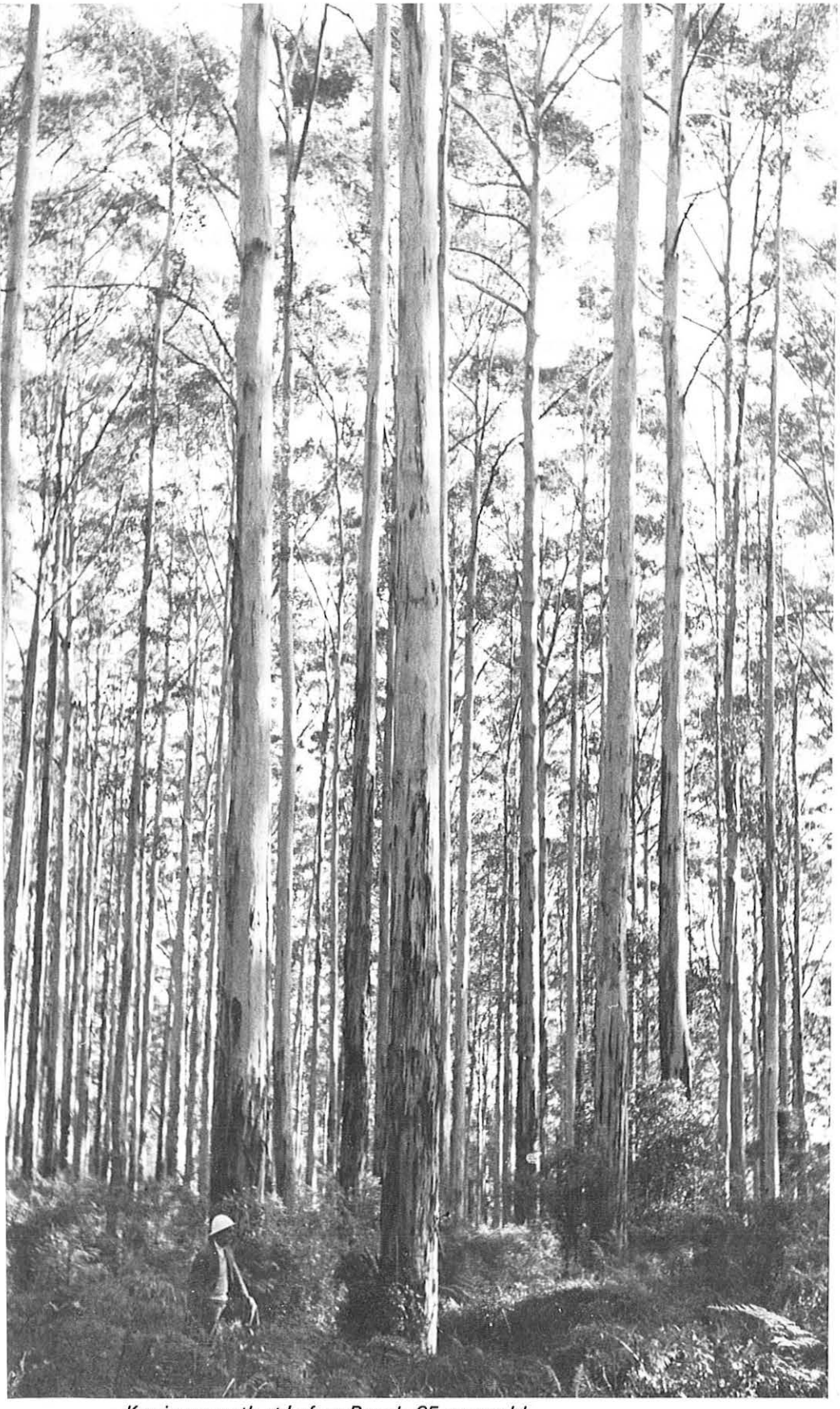
Nearly 4,000 acres of prime karri forest cut over for sawmills at Pemberton, Northcliffe and Jardee during 1967 and 1968 were treated for regeneration early in 1969. The treated areas have now been closely studied by local foresters and their surveys indicate a highly successful restocking. Up to 2,000 seedlings per acre are now well established over 95 per cent of the treated areas. The remaining 5 per cent will be restocked with hand planted karri seedlings this winter.

To achieve this an intimate knowledge of the flowering and seeding cycle of the tree is required. The length of the karri floral cycle from bud initiation to seed maturity is roughly four years. Flowering usually occurs at two and a quarter years, but this can vary from under one and a half to over two and a half years.

From a moderate crop of buds, a co-dominant tree will bear well over a quarter of a million flowers, but only about 50,000 seeds may be expected from this tree.

An experiment carried out over a five-year period in the karri forest measured the annual seed fall per acre at 1,000, 19,000, 59,000, 179,000 and 30,000 seeds. These results showed the variability of flowering and seed production.

The flowering period usually lasts two or three months, although occasionally it may spread over a period of more than two years in some stands. In general, heavy



Karri regrowth at Lefroy Brook, 95 years old

blossom occurs at intervals ranging from four to seven years.

When in flower the karri forest is one of the most prolific honey yielders known, contributing about 25 per cent of all the table honey in Western Australia. From 400 to 600 lb. of the finest quality honey may be harvested from each hive.

The immature seed capsules are located among the thinned-out oldest leaves. Following flowering, the seed crop ripens over one full winter. Seed shed occurs in the summer at the end of the fourth or fifth years of a cycle. Usually two consecutive years' seed, adequate for natural regeneration, are followed by intervals of from two to four years without seed.

Fire stimulates regeneration

The cheapest and most effective means of obtaining karri regeneration is to burn the logging slash and scrub at a time when there is adequate seed in the crowns of the special trees retained as "seed trees". Timing is determined by sampling and testing. This is important, as burning before seed is ripe allows the weeds to establish first, while burning after seedfall incinerates the seed on the ground.

The burning provides a clean mineral seedbed and removes established scrub which, if left untouched, would overtop the young karri seedlings and prevent their proper development.

Where seed falls on an ashbed, seedling development is quite remarkable and results in the absolute dominance of karri over weeds. At the centre of a two-year-old ashbed karri seedlings may be 10 to 12 ft. in height compared with 1 or 2 ft. in height off the ashbed.

Vigorous sapling stands such as these can then completely dominate the site and attain 80 to 90 ft. in height growth in 20 years. For this reason the "regeneration burn" should be as hot as possible to produce ashbeds without severely damaging the seed trees.

Following the opening autumn rain, karri seedlings germinate and the bare mineral soil and ashbed become carpeted with seedlings.

Unburnt leaf mould and ground vegetation hinder the establishment of the seedlings.

In cut-over stands of karri, three dominant trees per acre will provide the 120,000 seeds per acre required for satisfactory germination. These trees are left standing until after seedling establishment, and then usually felled for their excellent timber—being select trees in form and vigour.

Successful karri regeneration usually produces up to 30,000 seedlings per acre in the initial stages. Competition sets in almost immediately after seedling establishment and consequent deaths steadily reduce the number of seedlings per acre from year to year.

Although numbers vary according to topographical conditions, 1,000 trees at 10 years and 500 trees at 20 years could be the expected stems per acre at these ages.

Karri establishes dominance quickly and permanently, and competition between the seedlings in an unthinned stand must take its toll of growth of dominant or final crop trees in these early stages. On the assumption that early thinnings could have a beneficial result on the growth rates of the final crop trees, Forests Department research officers initiated experiments to examine two avenues to achieve a breakaway by these selected trees: (1) Thinning young regrowth aged about one and two years by using a foliar spray on unwanted stems; (2) The use of various fertilisers to promote growth in both thinned and unthinned stands.

It is too early to assess fully the results of these investigations, but it has already been shown that spraying must be done during the spring following germination (i.e. at age six to eight months). At this age both karri seedlings and scrub are at a height of 6 to 12 in.

No significant response to fertilisers has yet been noted in the thinned and unthinned regrowth, but where used in planting holes for artificially planted karri seedlings, growth has increased one and a half to two times normal.

The oldest stands resulting from controlled regeneration work date from 1929, however, valuable information has been obtained from areas of natural regeneration at Karridale, now aged 60 to 70 years, and also from old farm properties, one of which dates back to 1872.

Measurement of sample plots laid down in these areas indicates that karri will produce from 75 to 150 c. ft. of wood per acre per annum on favourable sites.

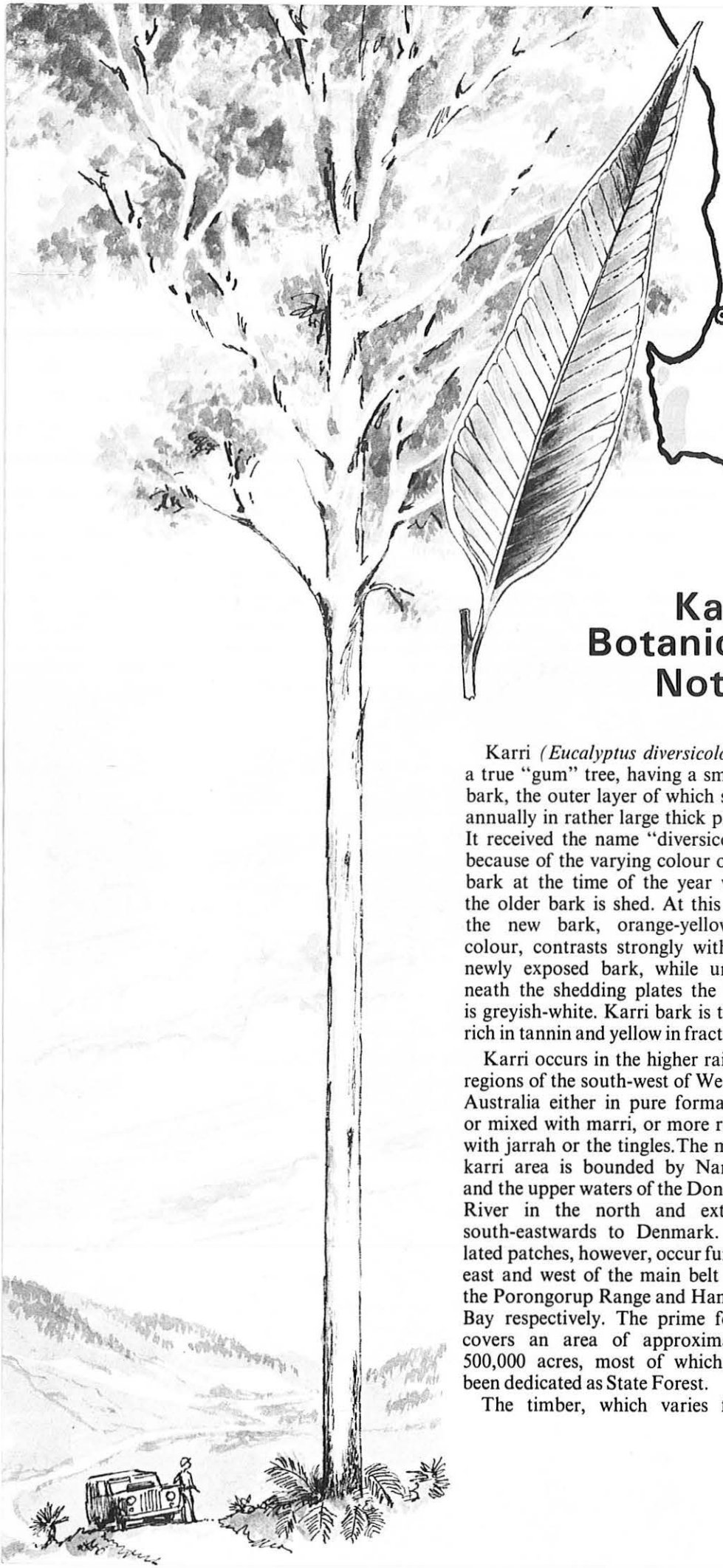
Judicious use of controlled fire in sapling stands does not appear to have any adverse effect on tree growth. The critical bark thickness to insulate the cambium from the fire's radiant heat is ·4 to ·7 of an inch. This critical point usually occurs where the stem is at least 3 in. in diameter.

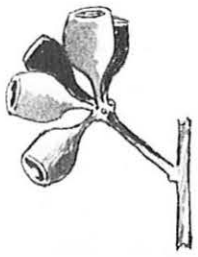
Vigorous dominants develop a thick fire resistant bark near the butt and can survive all but the hottest fires.

Karri soils generally are acidic in reaction, with texture varying from fine sands to loams derived from under-lying granitic rocks. Such soils are very low in nutritive value by recognised agricultural standards.

They have also been proven deficient in trace elements such as zinc, copper and cobalt. (See distribution map on page 6.)

Karri beams in a home at Carmel





Karri distribution map

Karri Botanical Notes

Karri *(Eucalyptus diversicolor)* is a true "gum" tree, having a smooth bark, the outer layer of which sheds annually in rather large thick plates. It received the name "diversicolor" because of the varying colour of the bark at the time of the year when the older bark is shed. At this time the new bark, orange-yellow in colour, contrasts strongly with the newly exposed bark, while underneath the shedding plates the bark is greyish-white. Karri bark is thick, rich in tannin and yellow in fracture.

Karri occurs in the higher rainfall regions of the south-west of Western Australia either in pure formation, or mixed with marri, or more rarely with jarrah or the tingles. The major karri area is bounded by Nannup and the upper waters of the Donnelly River in the north and extends south-eastwards to Denmark. Isolated patches, however, occur further east and west of the main belt near the Porongorup Range and Hamelin Bay respectively. The prime forest covers an area of approximately 500,000 acres, most of which has been dedicated as State Forest.

The timber, which varies from pale pink to deep red, is hard heavy, stiff and tough, and considerably stronger than Douglas fir (oregon) and English oak. It is an exceptionally good bending timber.

It responds well to kiln drying and suitable drying schedules are available.

Rated as durability Class 3 by the Division of Forest Products, C.S.I.R.O. it finds ready use for practically all building and construction purposes, if suitable provision is made for protection from termites (where they constitute a hazard) and if adequate ventilation is maintained.

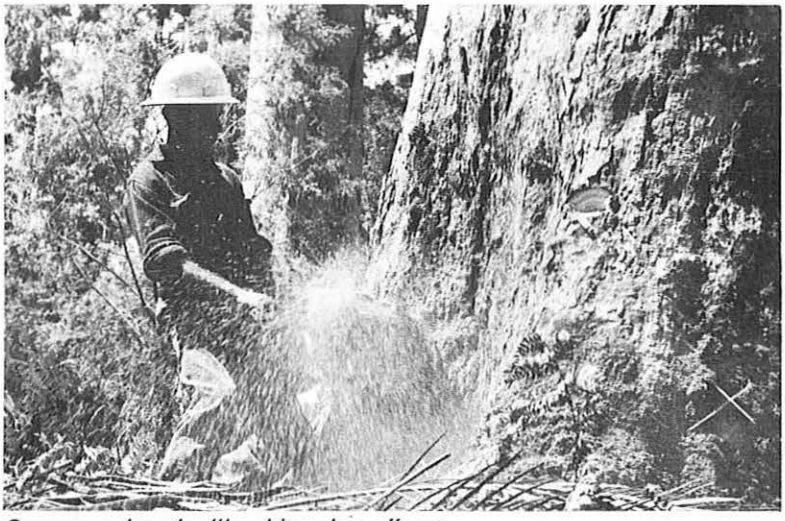
It is used in building construction throughout the state and houses built entirely of this timber have been in existence for over 50 years in the lower south-west.

Distinction between karri and jarrah timber

Jarrah and karri timbers are very similar in appearance. A common distinguishing test is to burn a splinter of the wood and note the result. Jarrah burns to a black charcoal, but with karri the red-hot coal continues to glow until a true white ash is produced. It should be noted that this test should be applied only to sound heartwood, as jarrah hardwood which has been exposed to weathering conditions and jarrah

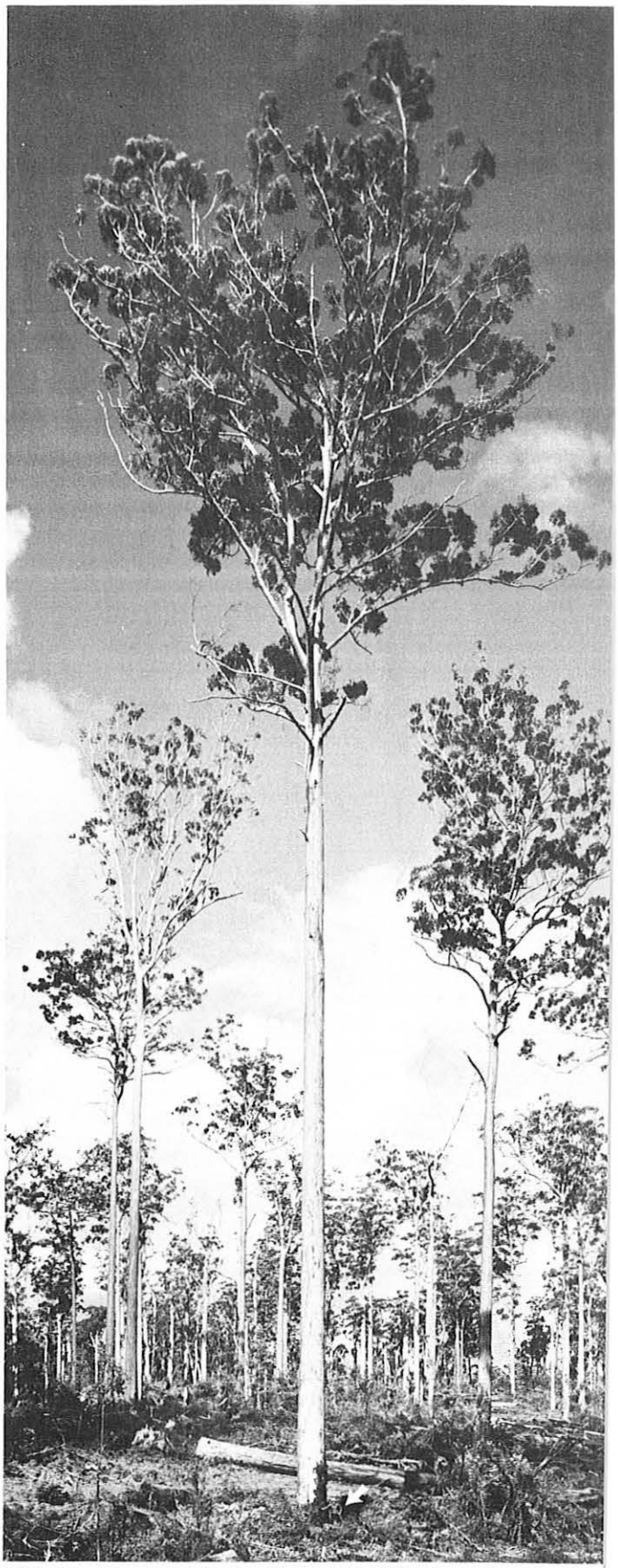
(continued on page 13)

Karri felling sequence: Feller removes wedge of wood from scarf

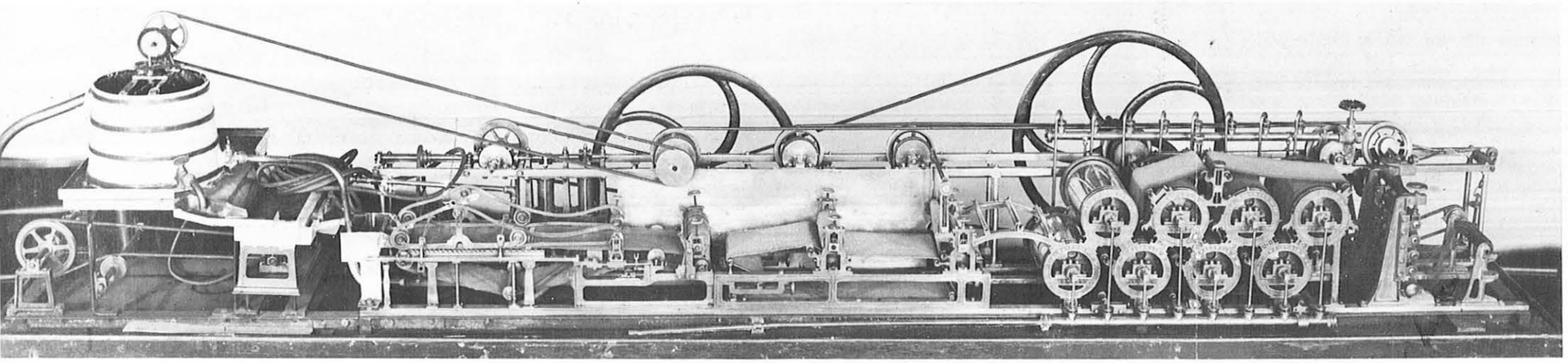


Commencing the "backing down" cut

On its way down. This tree measured 24 ft. 9 in. at the saw-cut



Seed tree retained for karri regeneration (note man at base).



The model paper-making machine photographed in 1920 at the Crawley laboratory

First Steps in Western Australia

The first practical steps towards Australia's paper manufacturing industry–currently worth nearly $200 million in annual sales — were taken in Western Australia in 1920 by the Forest Products Laboratory of the Commonwealth Institute of Science and Industry (later to become C.S.I.R.O.).

The smallest model paper making machine of its kind in the world was purchased and donated by Western Australia's four major newspapers of the day and set up to complete the Bureau's paper making laboratory at Crawley.

The newspapers were The Daily News Ltd., The West Australian Newspaper Co. Ltd., Sunday Times Newspaper Co. Ltd., and Kalgoorlie Miner Ltd.

Several of the State Governments subsidised the work which examined at length the paper making qualities of several of the most likely timbers from various states.

A 4-in. wide roll of paper containing 75 per cent karri fibre was produced by the 10-ft. model in one of the experimental runs.

Raw material—mainly crown-wood was cut into discs about 1 in. thick and then split into chips about 2 in. long and $\frac{1}{8}$ in. thick which were fed into a digester and boiled for several hours under pressure in a caustic solution. After washing, the resulting soft, fibrous chips were beaten in another machine, bleached and mixed with size and a little white china clay. This white pulp was then diluted to a 1 per cent concentration in water and fed into the miniature machine.

An exact replica of the larger Fourdrinier paper making machines, the model was built by Marshall & Co., London.

"The machine is the most interesting part of the plant," according to Mr. I. H. Boas, B.Sc., former Officer-in-charge of the laboratory, whose comments appear in Bulletin No. 2 of the Forests Department of Western Australia, 1921.

"On to one end pours a milky-looking liquid and from the other emerges the continuous roll of paper," he said.

After passing through various devices to feed it evenly, the pulp ran on to a copper wire gauze conveyor belt which, in addition to its forward movement, had a sideward reciprocating motion.

Much of the water filtered through the gauze at this stage of production and caused the tiny fibres to build up into a close network. The paper began to gain sufficient strength to support its own weight after passing through suction boxes (suction being provided by two small pumps) and then squeezing rollers which greatly reduced the water content.

At this stage the paper leapt a gap and was taken up by a felt conveyor to again go through two squeezing processes.

The next set of cylinders was steam heated and dried out the paper as it passed over and under them in series. Finally, the 4 in. wide paper web was passed through a bank of miniature calender rollers to give a smoother surface.

Mr. Boas said some of the hardwoods tested yield a high percentage of good quality pulp which is readily bleached and which felts on the machine to a good quality paper.

The impetus for this forest products research was given by a steep rise in paper prices after the First World War, and world-wide concern at the diminishing natural forest resources of species (softwoods) considered suitable for pulping.

Mr. Boas conducted the initial experiments with hardwoods to test their suitability in 1919. He had read adverse reports from an American expert, Mr. H. E. Surface, who said—after testing Tasmanian species—that eucalypts were no good for papermaking.

Instead of conducting experiments along the accepted lines of current pulping practice, Boas examined the woods for cellulose content. This is how he stumbled upon the key to making paper from eucalypts. Mature karri contained almost double the cellulose that Surface obtained as pulp from mature Tasmanian eucalypts, using the then current soda cooking technique, which dissolved a considerable part of the cellulose in the fibre, weakening the pulp.

The logical step was to lower the concentrations of soda and to use heat exchangers instead of direct heat. Soon other papermakers realised that external heating of liquors was much better than direct heat, and it became general practice in the industry.

These initial steps in Western Australia were terminated with the shipping of the equipment to Victoria in 1922.

The Growing Importance of Pine

On world averages, about 80 per cent of a country's timber requirements are softwoods, however, in Western Australia the position is reversed, and about 94 per cent of consumption is hardwood.

The continent of Australia has no natural forests of pine. A few timbers such as hoop pine, bunya pine and cypress pine are not true pines and are not now of high importance in the economic field of providing large quantities of softwood needed by Australia.

Western Australia has no native commercial softwoods, and people have therefore learnt to use eucalypt hardwood for many purposes for which softwood is used in other parts of the world.

In 1963, the Forestry and Timber Bureau of the Department of National Development extracted figures to show the anticipated log volume needed by Australia in the year 2000 to provide the country's annual requirements of sawnwood, plywood, paper, other wood pulp and wood chip products, piles, poles and posts. The figure is estimated at between 960 million and 1,150 million cubic feet.

If the national forestry programmes of that period (1963) were continued but not expanded, the expected annual yield of logs in the year 2000 would be 629 million cubic feet. The annual cost (also 1963 figures) of purchasing imports to bridge the gap between local production and demand would be between $422 million and $664 million, assuming adequate availability of material from overseas.

In fact the C.I.F. values of imports of forest products into Australia in the financial years 1966-67 and 1967-68 were $192 million and $209 million respectively.

Western Australia faces a similar problem. If we assume that total log requirements per capita will be 45 to 50 cubic feet, then with an envisaged population approaching two million in the year 2000, the State will need in that year 90 million to 100 million cubic feet of log

Radiata pine plantation, Grimwade, planted in 1933

timber . . . double our current requirements.

At present about 12 per cent of the annual log supply comes from private property. By the year 2,000, however, supplies from this source will be negligible.

This leaves State Forest to provide the total requirements and it is estimated that on present standards of utilization, the annual cut of native timber, under sustained yield, will be little more than 40 million cubic feet, at least until second growth native timber becomes available. When this occurs increased annual production can be expected, but although log quality will improve, average log size will be reduced as the veterans of the forest, hundreds of years old, are removed.

It is evident, therefore, that there is an urgent need to increase timber production to cope with likely future demands.

Pines have been chosen to provide for this increase, mainly because in plantation form they have a higher rate of growth of marketable wood than native hardwoods on equivalent sites, and because softwood timber has a much wider industrial use than hardwood timber.

The Federal Government, following representations by the Australian Forestry Council, recognised the need for an expanded rate of pine planting, and to achieve this, in 1967 set aside $20 million of loan money over the next five years for an Australia-wide programme aimed at doubling the rate of planting, thereby bringing it to 75,000 acres per annum.

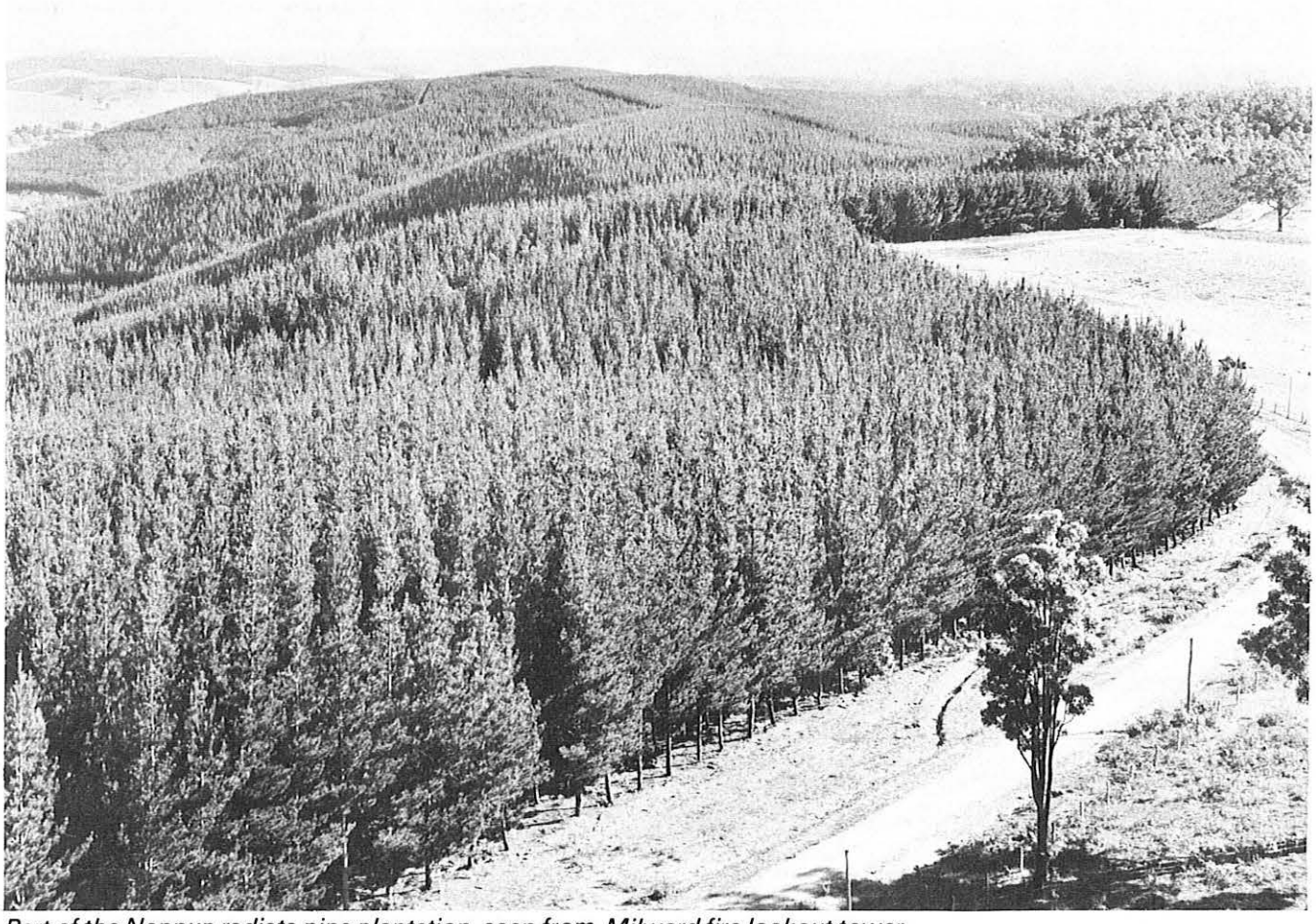
The loans will be free of interest and repayment of capital for the first 10 years because of the long-term nature of forestry and the long period between planting and income-earning production.

The limitation on the rate at which pine plantations can be established is chiefly financial and the Federal Government grant has enabled this rate to be doubled.

At the beginning of 1970 Forests Department of Western Australia pine plantations totalled 65,417 acres —the 1969 planting season provided 6,881 acres of that figure (excluding experimental plots).

With the higher planting rate it now appears that the target of 240,000 acres of pine plantation in Western Australia by the year 2000 will be achieved. Even so, this will lift production only by an estimated 30 million cubic feet per annum at that time and further plantings are likely to be needed.

In short, travellers in all states of Australia can look forward to seeing a lot more "white" wood in years to come.



Part of the Nannup radiata pine plantation, seen from Milward fire lookout tower. Foreground pines planted in 1959

Dual-purpose Fire Control Vehicle

The latest dual purpose fire control vehicle is a far cry from the first four-wheeled "fast attack" fire control vehicle operated by the Forests Department, shown in the top photograph, which was taken at Dwellingup in 1934.

The vehicle, a Ford A, was well equipped and included such items as the "Narrogin" type knapsack spray, rakes, axes and shovels.

One of the first heavy duty outfits in service was the old horse and dray which carried a water tank fitted with a semi-rotary hand pump.

The Forests Department's newest fire fighting unit, pictured below, is a combination of the four-wheel drive heavy duty tanker and the lighter, more mobile gang truck. The design embodies a 600-gallon capacity flat steel tank built permanently into the chassis of a Bedford five-ton class four-wheel drive truck.

Crew seating accommodation, protection canopy and stowed working equipment combine to provide a most flexible unit for all field conditions.

The vehicle is radio equipped for better logistical control.

Five of these vehicles have now been equipped, and a further group of seven units are either under construction or approved on the present works programme.

This will make at least one new type unit available for each forest division in the immediate future.

The dual purpose system enables a reduction in the number of vehicles required when compared to the previous system. This in itself will mean a considerable saving in capital cost, plus the fact that the dual purpose unit, being more versatile, will give far greater service and economy within its normal change-over period.

Each vehicle has a full range of equipment such as pack sprays, specially designed fire rakes, shovels and a chain saw.

The most modern type of high pressure fire pumper unit, powered by a high performance four-cylinder water cooled engine is built into the rear of the chassis and is permanently connected to the tank system.

This unit is equipped to draught water from rivers, lagoons and dams in order to fill its own tank when operating away from overhead water filling facilities.

The pressure side of the sytem is equipped with four hose outlets: one of smaller volume capacity for light duty operations, and three major outlets for maximum volume application.

The standard hose equipment for the latter is 10 100-ft. lengths of $1\frac{1}{8}$-in. diameter canvas hose which provides a reach of 1,000 ft. primarily for plantation fire fighting.

Forest Communications

VHF radio communication system:
All send 75·62 MHz. ⟶ All receive 80·82 MHz. ⟵

The story of communications during the 50 years of the Forests Department's operations in Western Australia is the fascinating story of communications technology which the whole world has seen.

Each decade has been one of remarkable advances.

As early as 1924 a start was made with construction of telephone lines between forest headquarters and the new fire lookout towers then in existence. Heliograph contact was used to keep in touch with working parties and survey teams.

By 1929 a single wire earth-return telephone system had been developed and this, with some refinement, has been extended over the years to approach 2,000 miles in length, connecting some 35 lookout towers and forest centres from Mundaring in the north to Walpole on the south coast.

Until recent years the public telephone system served only forest offices in the major towns. Since 1950 the P.M.G. network has extended throughout the rural areas enabling connection of minor forest offices and a number of lookout towers.

Hansard records that radio as a means of forest communication was first mentioned in 1923 by the Minister for Forests for testing by A.W.A. Tests were also carried out in 1929, but owing to lack of reliable equipment and limitations in technical knowledge, results were not sufficiently encouraging to warrant practical use.

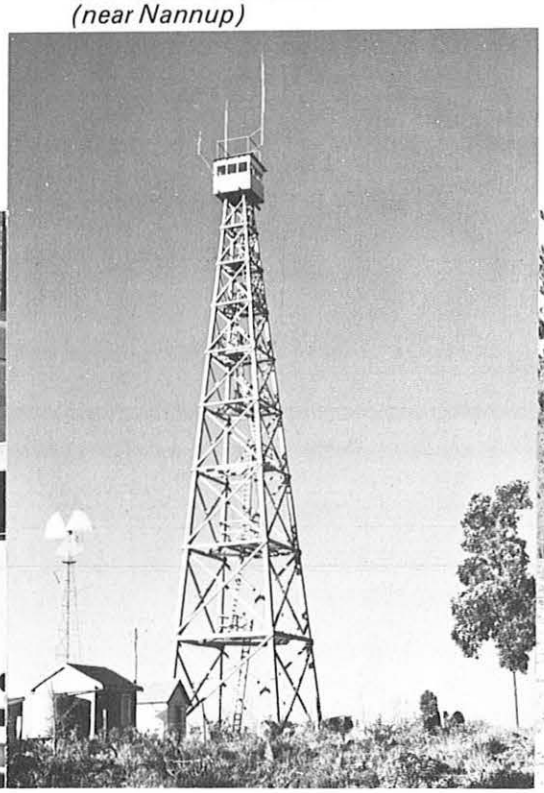
Further trials in 1946, using high frequency army surplus equipment, gave immediate prospects of economical and reliable operations and the following year saw the first units of a wide network installed at fixed stations and in fire trucks.

Divisional control centres worked field operational mobile units on a time schedule geared to the forecasted fire hazard for the day.

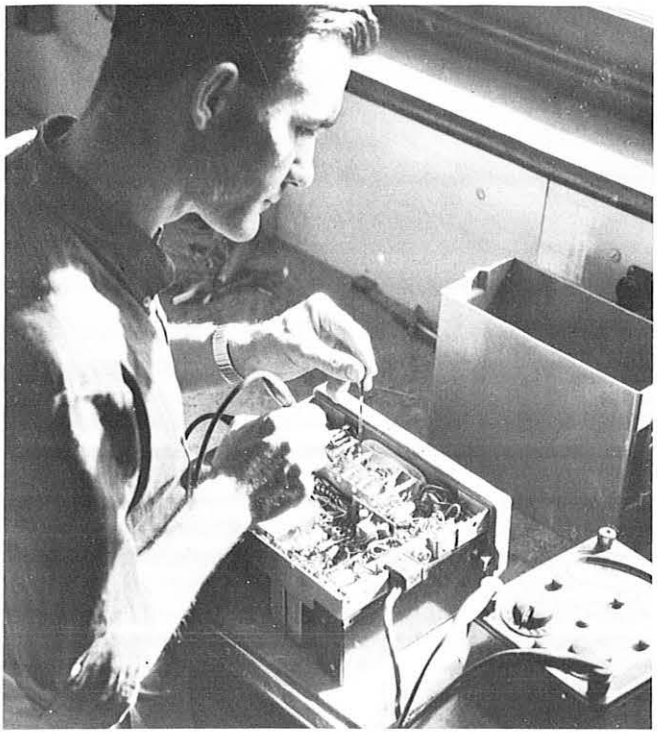
The new flexibility given to fire-fighting gangs and field officers by mobile communications made it possible to operate resources of men and materials remote from fixed lines of communications with more efficiency and greater economy.

High frequency (HF) radio suffered, unfortunately, from the serious disadvantage of interference from electrical storms and at times when most needed could be found to be unworkable. This deficiency was highlighted during the Dwellingup fires in 1961 when for the first 48 hours severe electrical storms at a most critical time rendered communication by radio extremely difficult. By this time much of the HF equipment was obsolescent and

Repeater station combined with fire lookout tower (near Nannup)



Mobile



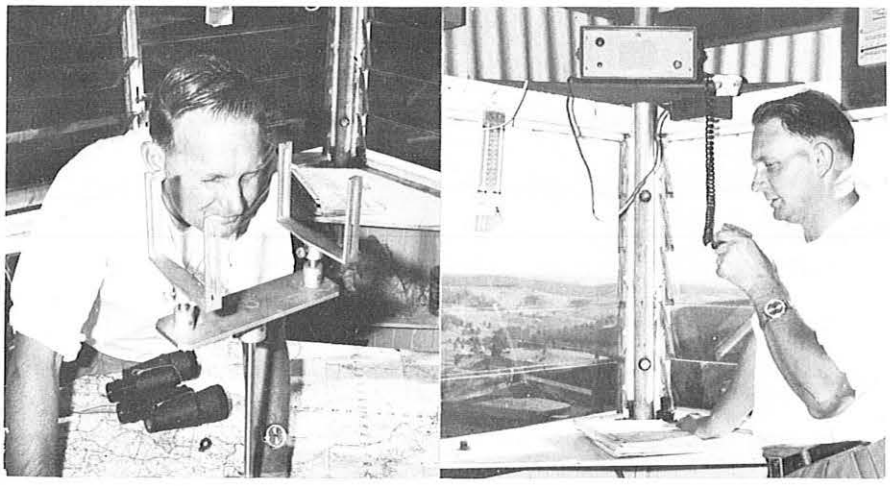
Forest Service radio branch headquarters and workshops are situated in Collier pine plantation, Como

it was clear that the time had come to convert to VHF (very high frequency) equipment which was known to be largely free from electrical interference.

It was fortunate that VHF equipment was available in compact transistorised units and that certain lookout towers were well placed for the siting of repeater stations. VHF communication in the band 75-85 MHz has been in operation throughout the forest areas in recent years. It gives even greater flexibility, as low battery drain means that the receiver may be switched on permanently to provide immediate contact with vehicles in transit.

Currently a radio-telephone system is under field trial with the probability that it will economically replace earth-return telephone lines, at least in areas where line maintenance is high.

The wheels of electronic progress never stop. The days of integrated circuitry are already with us and soon the officer remote from his home station will be in constant touch per medium of a pocket sized radio transceiver.



Towerman sighting fire outbreak and reporting over VHF to base.

Karri Botanical Notes

(continued from page 6)

sapwood may both give a white ash. However, jarrah always shows a black char beneath the white ash, while karri gives a white ash only.

The Forests Department maintains a timber inspection service for the benefit of buyers who wish to have timber certified true to name and up to specification. To inspectors, experienced in handling these species, the timbers are quite distinct, and the possibility of error remote.

The leaves of karri are alternate and petiolate (having a leaf stalk), broadly lance shaped, dark green above and paler underneath, and more spreading than pendulous—an unusual character in south-western Australian trees.

The cotyledons (seed leaves) after germination are broadly kidney shaped and taper into short stalks. The foliage of the young leaves is broad and delicate, and persists on the young trees until they are many feet in height. The leaf has a network pattern of fine veins as compared with the distinct parallel venation of the larger leaved marri (which is a typical bloodwood).

Flowers are a creamy white. The fruit is pear-shaped (pyriform) and contracted at the summit, slightly more than half an inch in diameter, with a narrow rim. The capsule is deeply enclosed within the fruiting calyx and the valves are also included.

Appealing New Book for Children

A new 16-page book, titled *Smoky Bear's Story of the Forest,* has been produced by the W.A. Forests Department for use by primary school children.

Aimed primarily at forest fire control education, it begins with drawings of trees, leaves and a few forest animals and birds.

The front cover artwork is in full colour and all other artwork is black with the emphasis on open line drawings, with suitable shading, to encourage use as a colouring-in book.

Smoky Bear is a koala symbol used to a certain degree in fire control publicity in other States, and now accepted for use as a symbol by national fire control bodies.

The drawing reproduced above is indicative of the appeal of some pages, while other pages are elementary and diagrammatic.

What we get from trees

A revised edition of the Forests Department folder *What we get from trees* is now available direct from the department, and to schools from the Teaching Aids section of the Education Department.

The two-colour folder covers a wide range of forest products, which range from honey, fruits, nuts, poles and piles, to the partially processed or manufactured products like sawn timber, plywood, chipboard and furniture, and also the highly refined and complex items such as rayon, cellulose plastics, film and paper.

How forests provide employment is also briefly covered by the folder.

Millionth acre of plantations

Australia's millionth acre of plantations—including both softwoods and hardwoods—was achieved during the last planting season.

To commemorate the occasion a tree planting ceremony, incorporating all States of Australia and the Australian Capital Territory, was held at King's Park. The ceremony was held in conjunction with the 7th All Australia Timber Congress, 1969.

The trees representing each State were:

W.A.: Pink Flowered Marri
(Eucalyptus calophylla var. *rosea)*
N.S.W.: Yellow Box
(E. melliodora)
VIC.: Pink Flowered Yellow Gum
(E. leucoxylon var. *rosea)*
S.A.: Sugar Gum
(E. cladocalyx)
QLD.: Lemon Scented Gum
(E. citriodora)
TAS.: Tasmanian Blue Gum
(E. globulus)

River Gum *(E. camaldulensis)* was chosen for the A.C.T. because it occurs naturally in every mainland State.

Fuchsia Mallee

(Eucalyptus forrestiana)

The fuchsi mallee is an attractive shrub or small tree for both public and private gardens. It is quite eye-catching because of its conspicuous pendulous brilliant scarlet flower buds and young fruits, which fade to a pale brown at maturity.

The tree grows from 9 to 20 ft. in height in its natural habitat, which extends from Salmon Gums to the south of Grass Patch. However, under cultivated conditions in sandy soil it is very much smaller, yet still very attractive.

The top photograph shows a fuchsia mallee with flowers and foliage of another of the same species in the background.

Rose Mallee

(Eucalyptus rhodantha)

A broad plant 4 to 8 ft. high, with occasional specimens of over 18 ft. high, the rose mallee is considered an excellent subject for cultivation. The species flowers almost throughout the year.

The rose mallee is related to the Mottlecah, or Rose of the West *(E. macrocarpa)* and is found naturally in a much more restricted area of the same region as this species. This is from the Hill River to some miles east of Watheroo, and then southwards, almost to New Norcia.

The rose mallee pictured appears quite happy with its environment at Perth Airport.