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FORESTRY IN WESTERN AUSTRALIA.

Talk given by A.C. Harris, Conservator of Forests.

on 6WN

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FORESTRY IN WESTERN AUSTRALIA.

In its world famous Jarrah and Karri forests Western Australia possesses a priceless heritage. After wool and wheat, timber is the third greatest producer of wealth in this State, and for a long period in our earlier history it was the principal wealth producer and made possible the State's early development.

One hundred years ago these forests were thought to be inexhaustible, but as a result of settlement, fire, and often times deplorable waste in milling, this has proved to be not so. All pioneer countries, of course, go through a phase of forest destruction before realisation dawns on the minds of the people that such a course is disastrous to national wellbeing.

Although our first timber exports began in 1851, no serious thought was given to forest conservation and fire protection until 1896 when a report on the State's forests assets was submitted to the Government. Even by 1904, however, a Royal Commission found it necessary to bewail the fact that nothing was being done to conserve and protect the forests. It was only in 1916 that any real forward step was taken, when Mr. Lane-Poole was secured from overseas to become Conservator of Forests. From that great forward step came the Forests Act of 1918, one of the best and most complete pieces of forestry legislation in the world. It introduced the era of scientific forestry in Western Australia. The first necessities were:-

1. To dedicate areas permamently as State Forest, because only under security of tenure, could adequate and long-term forestry be practised.

2. To introduce fire protection in order to stop the continuous devastation by fire which had been proceeding up to that time.

3. To assess the volume of timber available in the forests still existing, and map the forest areas.

4. To regulate the cutting of that timber so that the annual yield did not exceed the growth capacity, i.e. to inaugurate what Foresters call "sustained yield."

The years between 1918 and 1957 have seen steady progress along these lines. State Forest dedications now amount to approximately 4 million acres, but it is unlikely that more than another 400,000 acres will eventually be found suitable for retention as State Forest.

It will be seen, therefore, that we will ultimately have less than $4\frac{1}{2}$ million acres of forest out of the original 13 million acres carrying commercial forest in this State.

Among the countries of the world Australia in general, and Western Australia in particular, are relatively poorly off for forests.

Fire protection has been intensified progressively, and today the bulk of our forests receive fire protection of varying degrees. This has resulted in tremendous reduction in timber losses and damage due to fire and has favoured new growth in the forest.

By 1926 the first Working Plan was produced which fixed the annual cut from the forest at 600,000 loads per year as being the most that the forest could then sustain on the perpetual yield basis, but as a result of fire protection and improving forest management over the intervening years, it has been possible to raise this to 800,000 loads per year and an annual yield of 1 million loads will be possible within the next decade. Today our State Forests produce 800,000 loads of logs per year and approximately 200,000 loads additional come from forests on private property. This shows how much good forest land has been alienated. These private lands carrying timber are being fast cut out and not being used for the regrowing of a forest crop. Therefore, it will soon be necessary for State Forest to supply the whole of the 1 million loads now used annually by the timber industry, i.e. an increase of 20% in the demands made on State Forest is near at hand. Western Australia's present population is 670,000 people. Professor Stephenson's Report on Town planning for Perth predicts 1,300,000 people by 1985 and 1¾ million people by 2000 A.D. - only 42 years ahead.

Currently, Western Australia exports 25% of its timber production interstate and overseas. Therefore, on present trends of population and timber consumption, this State will be consuming all of its own timber output by 1980, and thereafter imports will steadily increase unless the State does something well in advance to forestall that situation. By 2000 A.D. our State will be using up at least 2½ times as much timber as it does today, and possibly more.

One of the principal ways to meet this situation is to augment our natural forests with pine plantations which are faster growing than our hardwood forests and can provide the softwoods needed to complement them. We now have 23,000 acres of pine plantations, and our current planting rate is 2,500 acres per year. Long-term planning aims at approximately a total of 200,000 acres of pine plantations in this State, to be established over the next 70 years. Some 30 years of patient research and plantation experience have made it possible now to carry out with reasonable surety of success such a large-scale programme.

That this forecast of future needs is not fanciful is borne out by the fact that New South Wales and Victoria, with forests originally much greater in extent than ours, have been very large scale importers of timber for many years. Imported timber is much more costly than our own product, and if we had to import all our needs, Western Australia's timber bill would be £5. million greater annually. Moreover, it is by no means sure that large imports will be available in future when needed, as countries at present exporting may then have no exportable surplus. The United States of America for instance, already imports large quantities of timber even today and expects to nearly double its over-all timber consumption by the year 2000.

World statistics all show rising demands for wood and wood products in spite of substitution and the development of new materials. Australia as a whole today imports approximately 20% to 25% of its timber requirements, and imports will probably rise to approximately 40% by the time the population reaches 15 millions. In short, of all of the primary products of Australia, timber is the only one we need to import; in all other cases we have exportable surpluses. Consequently we need to dedicate permanently the whole of the native

forest areas possible, but even these will not be sufficient in the long run. With our still limited population, our forests are not yet fully used and developed, but this situation will change fairly rapidly during the remainder of this century. Our native forests, although far from developed to their highest potential, are even now supporting directly in growing, harvesting and milling the crop an average of 1 wage earner per 600 acres all over, including tracts of forest not yet opened up. This figure will in time be probably improved to one wage earner per 300 acres.

We are used to the traditional timber industries producing sawn timber, sleepers, piles and poles and firewood, and these need little comment. It is only a matter of time, however, when Western Australia will have a paper pulp industry in the Southwest which is a more favourable place to supply raw material for pulp at low cost than any other part of Australia. Production of paper pulp will use both Karri and Marri - also known as Red Gum. Over and above the log requirements of the sawmills there is enough lower grade raw material to run a paper pulp plant in the Pemberton region producing 400 tons of pulp per day, or more than the largest plant anywhere else in Australia. Detailed studies have been made of all the needs of such a plant - wood, water, fuel, power and even chemicals.

The first paper produced from Eucalypt wood in Australia was made in this State many years ago from Karri and Jarrah, and recently new experiments by the Division of Forest Products, C.S.I.R.O have resultedin the production of good quality paper from Karri and Marri.

A paper pulp plant needs large quantities of chemicals, such as lime, and also salt, from which to produce its own caustic soda and chlorine, and therefore it brings other industries in its train. Today a minimum sized, economic pulp plant producing 100 tons of pulp per day has a capital cost of £5. million. Our forests of the Karri region could, however, support a plant 4 times as big.

Paper pulp made from short fibred hardwoods is greatly improved by the blending with it of longer fibred softwood pulp - hence the large pine plantations being established in the Blackwood Valley and Kirup areas which are intended to meet the needs of the paper pulp industry as well as sawn timber and plywood.

Pinus radiata has been proved in New Zealand to make some of the strongest newsprint in the world. It is a good timber for peeling to produce veneers for plywood, and suitable timber for plywood is scarce in Western Australia. The pine plantations in Western Australia are being managed to produce this high value material in increasing quantities. The 20,000 acres of plantations of Pinus radiata planned for the Nannup area in the Blackwood River Valley are expected to yield within 30 years some 55,000 tons of pulpwood and 80,000 loads of sawmill logs annually, supporting a sawmilling industry double that of Pemberton, the largest milling centre of the State today. However, these Nannup Plantations will commence to produce timber from thinnings in ever-increasing amounts from 1972 onwards. It appears that the Blackwood Valley is destined to become a large and important industrial centre.

Pine plantations and their associated industries give higher concentrations of rural employment than most forms of land use. Evidence gathered from the South Australian pine plantations shows that at 20-30 years of age they already support one family per 100 acres, or better, and at maturity will support one family per 25 acres.

Other areas within the State where large plantations of fast growing P. radiata are being established or extended are at East Kirup and Collie. This species needs good soils for best development and an intensive search is going on in the Southwest for further areas of suitable soils for this wonderful tree species which has produced such

spectacular results in New South Wales, South Australia, New Zealand and Chile and brought large industries in its train. Our oldest plantation of P. radiata in this State has been producing annually for the past 33 years at the astonishing rate of 12 loads per acre per year, with a royalty yield alone in excess of £30. per acre per year.

On the coastal sandplains North of Perth extensive plantations of Pinus pinaster are being planned, and already 7,000 acres have been established. An area of 150,000 acres of sandy country has been dedicated for this purpose. Some day it should resemble the famous pine forests of the Landes of Gascony in France. Their proximity to Perth make these sandplain forests of unique value.

Our native forests inevitably produce large quantities of branchwood, mainly suitable for fuel. It is estimated that in the main forest areas there would be available annually in perpetuity at least 1 million tons of such wood sufficient to produce 300,000 tons of high grade charcoal per year. Therefore, there are adequate wood resources for a large charcoal-iron and steel industry in the Southwest of 300,000 tons per year capacity, and the further development of this interesting industry may only be a matter of time.

A charcoal-iron industry of this magnitude already exists in Brazil where Australian Eucalypts are planted very extensively for the production of charcoal.

It is a natural industry for the Southwest forests, and in Western Australia we have a happy combination of favourable factors with high grade iron ore and charcoal resources second to no other country in the world suitably placed for such an industry.

The forests are also full of material suitable for making hardboard, such as Masonite, Burnieboard and Timbrok. Here again our population is as yet too small to attract such an industry which requires a local market sufficient to justify a minimum economic plant unit costing £1. million. Attempts to secure such an industry are being made continually however, and its establishment will be only a matter of time.

There is an expanding demand for cardboard for containers and packing, and this industry is bound to come also. The processes of the paperboard industry resemble those of the paper pulp and hardboard industries, standing midway between them. All three are very large wealth producers and large employers of labour.

The production of tannin extract from Wandoo wood and bark is one of our important expanding industries which now exports well over £½. million worth annually.

It is not generally appreciated that our forests produce in the vicinity of £¼. million worth of honey per year, and with the opening up and development of new forest areas which is still going on, honey production will be expanded greatly. Producers have special Apiary Sites leased to them throughout the forest areas, especially in the Wandoo and Karri forests. Honey and tannin extract serve to highlight the secondary value of our remaining Wandoo forests, quite apart from their valuable production of sawn timber, piles and poles, and bridge material.

It is expected that the future will see greater use of Marri or Red Gum as a scantling timber. Although not appreciated today while there is ample Jarrah and Karri available, it nevertheless produces a better timber than much of the hardwood gladly accepted in Victoria and New South Wales for house building.

Some people think we do not need so much forest, and that timber use will decline. World figures are against such a belief and it is significant that large afforestation schemes are going on in such industrialised lands as England, France and even U.S.A., and in fact, most countries of the world. In this State, we are fortunate that we can still heed the lessons of other countries and retain our forests.

Only as our population grows can we make the fullest and best use of our forests. Within the limits set by the principle of sustained yield the fuller the utilisation of the forest, the better for the forest, and the greater volume of wood it can ultimately be made to produce. We are the custodians for posterity of this vast natural resource which we must pass on undiminished and even improved and extended for future generations, not forgetting that we as a people have allowed in the past very considerable areas of prime forest to be alienated and destroyed for very dubious benefits.

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